AMATEUR RADIO

VOL.53, No 9, September 1985

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

Special VK2 75th Anniversary Special

VZ200 RTTY System
Construct A Roll-up Antenna
Birthday Honour for Columnist

Calculate Beam Headings & Great Circle Distances with a Computer
1985 VK ZL O Contest Rules

The Australian Electronics Monthly

.....in our September issue:

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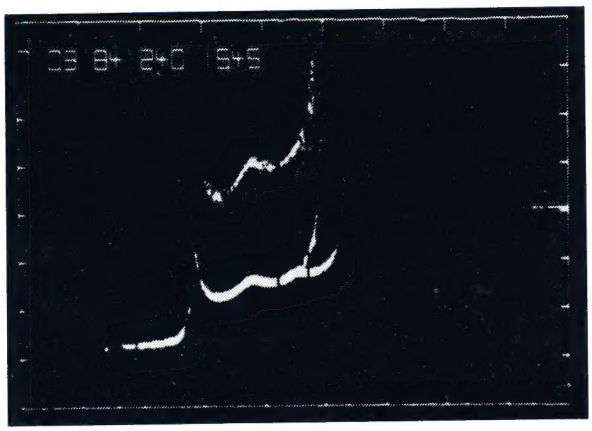

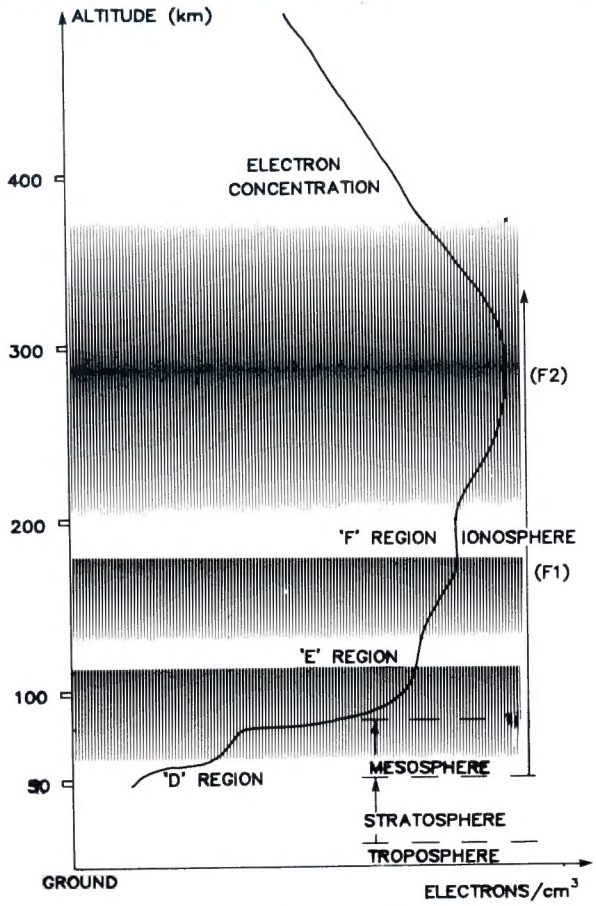

RADIO COMMUNICATORS' GUIDE TO THE IONOSPHERE

The September issue features Part 1 of this major new series written by Leo McNamara (IPS Radio & Space Services, Dept. of Science) and Roger Harrison (VK2ZTB, Editor of Australian Electronics Monthly). It is a practical, clearly written guide, by experts for non-experts. Don't miss Part 1!

Also in September:

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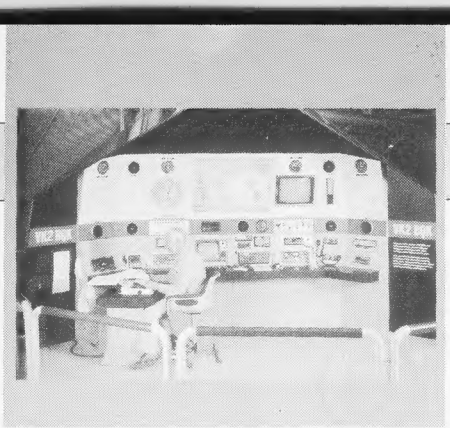
Photograph courtesy the Museum PR Department.



Photograph courtesy the Museum PR Department.

Pierce Healy VK2APQ at the Power House Museum Amateur Radio Station — VK2BQK.

AMATEUR RADIO

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In this year's Queen's Birthday Honours, another amateur was honoured with the Order of Australia. This was none other than our stalwart columnist, Eric VK5LP. Eric has been an amateur and member of the WIA for twenty-three years and 'ye olde faithful' VHF UHF editor for over fourteen years. Listed on page 43 are some of Eric's achievements in over forty-six years of community service.

This month Tim VK2ZTM, has been busy co-ordinating another VK2 Special in honour of the 75th Anniversary. This special feature begins on page 29 with a special story of the VK2 Museum amateur station written by Pierce VK2APQ.

We all know there is usually plenty of 'hot air' around amateurs and their shacks, but Gil VK3AUI has taken to this air in another way. On page 15 Gil tells of his experiences with Hot Air Ballooning and 2 metres.

Beginning this month, for the guidance of the new amateur, is a series 'Know Your Second Hand Equipment', p.13. Ron VK3OM has delved into his archives to find some general information of some of the early 'black boxes' which are still available today through the 'used and loved' channels. Ron hopes to continue this series for some time, as he has plenty of information hoarded away, if there is enough interest from members. Drop him a line so he may know what you think and what equipment you would like to see written up.

For VHF enthusiasts, don't miss some more thoughts on the phenomena of 'Aircraft Enhancement', to be published next month.

Also, VK5 will be presenting a special section for the 75th Anniversary, and from the copy, which is already received, this will be a must for those interested in the early days of radio in South Australia.

BKP

DEADLINE

All copy for inclusion in the November 1985 issue of AR, including regular copy of columns and Hamads, must arrive at PO Box 300, Caulfield South, Vic. 3162 at the latest by midday 23rd September 1985.

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Material should be sent direct to **PO Box 300, Caulfield South, Vic 3162**, by the **25th of the second month preceding publication. Note: Some months are a few days earlier due to the way the days fall. Phone: (03) 528 5962.**

Hamads should be sent direct to same address.

Acknowledgement may not be made unless specially requested. All important items should be sent by certified mail. The editor reserves the right to edit all material, including Letters to the Editor and Hamads, and reserves the right to refuse acceptance of any material, without specifying a reason.

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WARNING!

Worldradio
Year 14, Issue 10
April 1985 • 95c

Beware of bogus Yaesu 757 GX radios

Yaesu 757 GX radios, considerably different than those being advertised nationally, are showing up in the Midwest. A serial number check with Yaesu Headquarters in Paramount, California confirmed these radios are illegal. They are not made for export. Apparently, someone has imported the sets illegally and is passing them off on unsuspecting amateurs. Radios can be purchased cheaper in Japan, and stripped down models even cheaper.

The radios are identical in appearance externally but do not have the CW filter, won't work on the WARC bands, have no warranty and *will not* be serviced by Yaesu repair centers in the USA. The manuals are also different than those with the "Made for sale in USA models". The shipping containers indicate the radios must be returned to Japan for servicing; however, this marking could be easily removed or covered.

The Yaesu Headquarters people estimated it would cost about $150 to bring the illegal radios up to specifications. It is unknown how many of these radios have been brought into the country, but three showed up in the Dayton area during January. These were not purchased from legitimate Yaesu dealers.

So, know your dealer and beware of guys who may have a "real deal" for you.
— *Robert McKay, N8ADA*

You can get caught here too!

It doesn't just happen in the USA . . . you can get caught here right here in Australia.

Like the USA, some unscrupulous traders are passing off Japanese domestic models as the same as export models intended for Australia.

Don't fall for it: you can easily spot the frauds by checking the box: Japanese domestic models have this sticker on them:

国内向仕様品
WARRANTY POLICY IS
VALID IN JAPAN ONLY

If they have such a sticker (or if there is evidence of removal or cover up) don't be conned. The set is not covered by Yaesu warranty in Australia and may also be quite different internally. You probably won't even get a proper instruction manual — often a photostat copy of a few pages!

Buy your Yaesu with confidence from the Yaesu factory authorised importers. You'll receive a genuine Australian model, genuine Australian warranty, genuine Australian back-up, genuine English language manual. . . and a genuine deal.

There are 55 Dick Smith Electronics stores across Australia. . . there's one near you.

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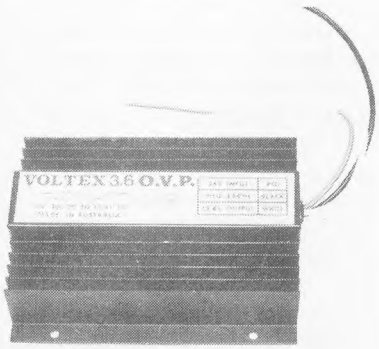

Electronic Voltage Reducers

See Review page 25 This Issue

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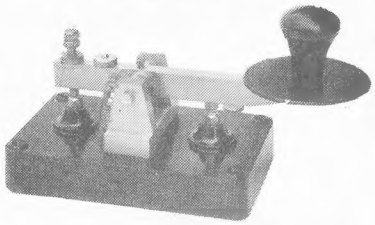
THE KEY TO GOOD CW



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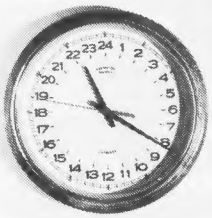

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Following the highly successful Electronics Tours of Japan in October 1984 and May 1985, Paul Rodenhuis VK2AHB announces the new **EUROPEAN ELECTRONICS TOUR!**

Departing 21 June 1986 for a four-week tour of France, Italy, Switzerland, Germany, Holland, and UK with the following highlights:—

1. Visit the DARC Ham Fair in Friedrichshafen.
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The cost of this fantastic, specially planned tour is a very reasonable $4995 per person.

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Travelaw,
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TARB B1154.

EDITOR'S COMMENT

WHAT IS OUR FUTURE?

In a recent VK3 Division Sunday morning broadcast these questions were asked;

"Have you a personal view on the future direction of amateur radio? Do you believe the hobby is being adequately promoted to all age groups? What role will computer technology play in amateur radio in years to come? Has amateur radio in fact got a future? If you would like to comment on these matters write to the WIA Public Relations Officer, Jim Linton VK3PC".

We feel that these questions are of such importance to amateur radio, not only in VK3, but in Australia as a whole, and throughout the world, that they need to be placed before us all for our deepest consideration in this, our 75th Anniversary Year.

There is much in amateur radio in Australia at present which should cause us all to think very seriously about the future of our hobby. I think myself that "hobby" is inadequate. "Part-time way of life" might describe better for many of us how we feel about our activities.

One of the first disturbing facts is that we are becoming an older segment of society. A recent ARRL poll revealed that the largest ten year age group among radio amateurs is that from 51 to 60 years old. Our own recent questionnaire tallies almost exactly with the US distribution. There are amateurs under 20, but far fewer in number than corresponds to their share of the population. Certainly, few people can be expected to become amateurs at less than about 15, but the 21 to 30 group is not much better in its representation. How can we make known to all the potential young amateurs the existence of this magificent arena for their talents?

Computer technology, with the introduction of packet radio, is bringing in younger people, some returning after a period devoted entirely to computers. This is an important trend but the numbers are still small. We have gained many younger amateurs from those who began with CB, but after an initial meteoric boom CB is now contracting as it matures. Where is the next infusion of new people to come from?

And what of the Institute? Is out time-honoured programme of club and Divisional meetings, conventions and field days, contests and DX the only way to continue? Why are so many amateurs not WIA members? What must be done to convince them that we, the Institute, need them, and they need us?

If you have any answers, please let's hear them. Write to VK3PC, or to your own Division, or to us here at the Federal Office. If you can, introduce newcomers to amateur radio, and introduce new amateurs to the WIA. We all need each other.

Bill Rice VK3ABP
Editor.

AR

WIA Seventy Fifth Anniversary

75th AWARD

Members are advised that they have only three months left in which to satisfy the requirements of this award.

Remember that in the years to come, the certificates for this award will be a collectors item.

75th ANNIVERSARY DINNER

If you have not sent in your registration form by the due date, ie 30th August and you now wish to attend, contact the Federal Office to enquire as to whether there are any vacancies or cancellations. A "reserve" list will be maintained in the event of cancellations.

PROPOSERS OF NEW MEMBERS

As promised in the August issue of AR, below are listed the proposers of new members that the Federal Office are aware of. These and all those that we have not been notified of, are to be congratulated. Small gifts will be despatched during the next weeks to the following:

VK3BER(3), VK3WZ, VK9ND, VK2YE, VK2BQS, VK2JGK, VK2PTL, VK3XR, VK2DAF, VK2EMC, VK2KFV, VK2EDQ, VK2EJW, VK2AKX, VK2AIT, VK2DYW, VK2KGO, VK3VU, VK2AKY, VK4NUU, VK2BXT, VK2BTD, VK5AMI, VK4VRS, VK4FOX, VK4AAE(2), VK4UG, VK5MC, VK2CRR, VK2AYB, VK2ETS, VK2VA, VK2AZS, and VK2EZZ.

Membership is the life blood of your Institute. It is not only a matter of statistics, but it affects all aspects. Our budget is set by the subscription income. The more members there are, the cheaper becomes the unit cost. New members this year receive a special, 75th Anniversary membership certificate, along with the opportunity to be the "75th Member Scheme" for a quartz multi function clock and there are the small gifts available for those members who propose new members.

TAPE RECORDINGS OF OLD AMATEUR RADIO SOUNDS.

The 75th Anniversary Sub Committee are proceeding with this project — we again appeal to any member who has in their possession any recordings of a historical nature, to loan them to the subcommittee for transcription. You can rest assured that any item loaned will be treated with the utmost care — please despatch by certified mail, well packaged to the Federal Office.

Recently, at an Eastern and Mountain District Radio Club meeting, held at the Nunawading Civic Centre, a demonstration of the sub-committees work in this area, was given by Peter Wolfenden VK3KAU, and all who heard the segments were impressed. It was of special interest to hear the voice of one of the founders of Long Distance Radio Communications, Gugliemo Marconi amongst those that Peter demonstrated.

We appeal to any amateur who has access to historical recordings of any kind to come forward.

BOOK PACKS, THE 75th ANNIVERSARY AND THE YEAR OF YOUTH

The June issue on this item has generated a great deal of interest and mail to the Federal Office. In order to satisfy many of the questions being asked, listed below are the contents of each book pack. (Items may change subject to availability).

$15 pack. P&P Paid.

Into Electronics (NSW Education Service)
Novice Electronics
100 Basic Projects
Guide to Amateur Radio (RSGB)
WIA Book 1
WIA Call Book
Radio Amateurs World Atlas

$30 pack. P&P Paid.
The following plus the $15 pack:
Basic Training Manual (NZART)
Hints and Kinks (ARRL)
Weekend Project (ARRL)
$50 pack. P&P Paid.
The following plus $30 pack:
ARRL Handbook (ARRL)
Maidenhead Locator World Atlas

Each pack will contain information on amateur radio in the form of letters, leaflets and posters.

When applying for a book pack please ensure that you enclose, in your request to the Federal Secretary, details of the Club/Group making the presentation and the recipients. It must be stressed that the value of these packs bears no resemblance to retail prices.

WIA 75TH AWARD

Following is a list of recipients of the WIA 75th Award — Certificate numbers 76-200.

NAME & CALL SIGN	CERTIFICATE No.
Chris Bell VK3DGN	76
W E Washbourn VK4VJO	77
John Bearsby VK6ZVA	78
Rodger Bingham VK4KCM	79
M V Miller VK5MX	80
D Cross VK2EYI	81
J G Wallace VK4BJE	82
W A Wallace VK4KHZ	83
Elizabeth Anderson VE7YL	84
D J Richards VK4UG	85
G B Moody VK2PQI	86
J E Brown VK3KJB	87
L S Dixon VK3TE	88
Ron Johnson VK4FTJ	89
Eddie Jennings L50126	90
Gavin Parker VK7DU	91
M T Deakin VK4DV	92
Brian Major VK2JBM	93
Fred Freemantle SWL L40855	94
Max Willis VK4BMW	95
Les McIntyre VK3XF	96
D Sellars VK2AZS	97
Robert Park ZL2259	98
Peter Johnston VK2NPJ	99
Alan McLauchlan ZL2AVA	100
T Delandre VK2PDT	101
Steve Jenkinson VK3YH	102
Peninsula School AR Group	103
Dieter Rausch VK2DOC	104
William C Hall VK2XT	105
Peter E O'Connell VK2JJJ	106
Greg Sargeant VK2MUE	107
M P Brockway VK2KSY	108
Gordon Pope, NZ	109
Allen Crewther VK3SM	110
Jim Bryce Z21BP	111
Tom Berezowski JE2ZXX	112
Josie Gleadhill VK4AN	113
John Hannan KA6RAQ	114
Mary J Matheny KB6CLL	115
Robert D Townsend K6OHE	116
Ken D Walston Sr WA6ZEF	117
Ralph Parton VK2PEJ	118
S C Jensen W7HLJ	119
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Kevin Maroney VK3IR	146
B L Mills	147
Martin Suter VK6NMS	148
Harry Garratt ZL2BDF	149
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Dusty Smith KB6FIW	151
Adrian Amato VK1NYA	152
KH6JJC Hawaii	153
W N Smith L20326	154
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L F Foulds ZL3JI	156
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Lewis W Smith VK2LS	158
I C Allen VK3KNJ	159
Rollin Robb K9LMJ	160
Ken Lauridsen W0LEC	161
V Moore NH6DQ	162
C J Burns VK3CQL	163
Tony Hunt VK5AH	164
Colin Parkinson VK2PC	165
Kenneth Kimberley VK2PY	166
Howard Miller W4KXE	167
F E Leaver VK2SU	168
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E G Loats VK3KKG	171
Jerry Healy KE6SC	172
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WIA NEWS

IMPORT DUTY

As members are aware, in 1983 a by-law was implemented to allow the import of amateur transceivers at the 2 percent levy, subject to these transceivers being certified by the Federal body of the Institute "as not capable of transmitting outside of the amateur allocated frequencies".

This by-law has recently been consolidated and is now a permanent by-law of the Customs Department and will remain effective until the Radio Communications Act and its subsequent regulations are enforced. This by-law, does allow the purchase of amateur transceivers at retail outlets at a much lower cost than otherwise would be the case.

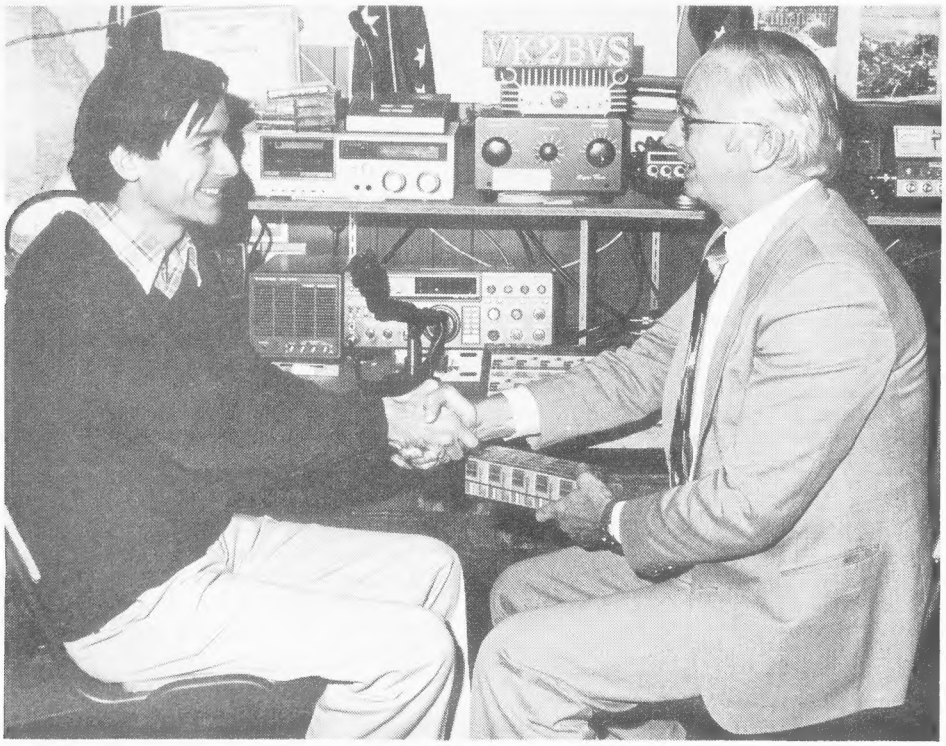
Amateurs travelling overseas and wishing to bring accompanied equipment back to Australia with them, should not experience any difficulties. You are advised to consult with the Customs Department in your home State and certainly to obtain a copy of the Australian Customs Information leaflet for tourist — this is available from the Australian Government Printers and is form No R83/160.

SEPTEMBER 1985

SUN	MON	TUE	WED	THU	FRI	SAT
1 Fathers Day S-85 Period Starts WA 3.5 SSB Contest	2 Labour Day USA	3	4	5	6	7
8 Grandparents Day-USA	School Resumes-ACT School Resumes-NSW School Resumes-VIC School Resumes-WA	10	11	12	13	14 European Phone Test VK Novice Test
15 European Phone Test VK Novice Test	Jewish New Year Muslim New Year Papua New Guinea Indep Day Rosh Hashanah School Resumes-SA School Resumes-Tas	17	18	19	20 Qld School Break-up	21
22	23 AR Deadline-all copy Spring Equinox VKI Division Meet	24 VK5 Division Meet	13 weeks to Christmas Jewish Day of Atonement Yom Kippur	26 Melbourne Show Day	27 Final Day to Book for VK2 Ann Dinner	28 WA 3.5 CW Contest YLRC Italiano Test
29 Daylight Saving Stops Europe WA 3.5 CW Contest YLRC Italiano Test	30					

PHOTO WINNER 1985

Agfa-Gevaert's Sydney Manager, Mr John Schrauwen, presents Sam Voron VK2BVS with his prize for the 1984-85 Photographic competition. No doubt Sam, a great exponent of amateur radio, attempted to get John interested in the hobby. Congratulations Sam and thank you Agfa for your continued support of our magazine.



1985 NZART CONFERENCE

David Wardlaw VK3ADW, and Michael Owen VK3KI, attended the NZART Conference in Christchurch as representatives of the WIA.

During the Conference a resolution of congratulations to the WIA on their 75th Anniversary was carried with acclamation. As you know, the WIA has considerable reservations about certain sections of the new IARU Constitution. We now know that these same reservations are held by the NZART. As a consequence, working with the NZART overseas Liaison Officers, David and Michael, both WIA IARU Liaison Officers, started preparing a joint paper on suggested amendments to the IARU Constitution. This paper is to be presented at the Region 3 Conference at Auckland in November this year.

The proposed new New Zealand goods and services tax is causing considerable concern as it will be applied to subscriptions. As the level has not been announced, it makes budgeting for the next financial year difficult.

Many of the matters raised by the branches at the Conference are very similar to those raised in Australia, for example, an asterisk beside call signs in the Call book to indicate membership of the NZART, and the matter of introducing cyclic billing.

With the continuation of these exchange visits to each other's Conferences the relationship between the two societies has grown very close. Which must be to the advantage of amateur radio in both countries.

AR

75th Nostalgia

A MODEL T POWER SUPPLY

Has there been another?

Herb Unger VK2UJ
"The Ranch", Alectown, via Parkes, NSW. 2870.

It was in 1924, that I listened to the first wireless set, about the time I left school. I was in my home-town, Alectown, and I listened to a weak station in Sydney, some 200 miles (322km) away.

There were loud crashes of static, interspersed with faint notes of music. From this first experience of radio, I became fascinated with it.

The receiver had four valves, with a rheostat for each valve and honeycomb coils, mounted on the front panel. To be able to hear the sound of music and voices through the air, over such a long distance, through the air without wire, seemed like magic.

How could it happen? How could a wireless set work? How did a transmitter work? Information on this subject in outback areas, in those early days, was not readily available.

It took years to fathom it out and eventually I heard about AMATEUR RADIO. Now that was something and I dreamed, that in years to come, I may be able to become an amateur, and have my own transmitter and communicate with others all over the world.

There were no amateurs or potential amateurs in my area, so it required an abundance of enthusiasm to pass the Morse code exam at 12 WPM, with no assistance, was a major stumbling block. I decided to thoroughly learn one letter a day, as I sat on a five furrow plough pulled by eight horses, and each succeeding day repeat all the letters learned the days previously.

In a little over a month, the alphabet was memorised and the next hurdle was to learn to copy and gain speed. The only Morse available was on 600 metres on the family broadcast set. It consisted mostly of a series of Vs followed by a three or four letter call sign, depending on whether it was a land or ship station. Progress was slow, but after several years of patience and determination I could copy most of the messages I heard.

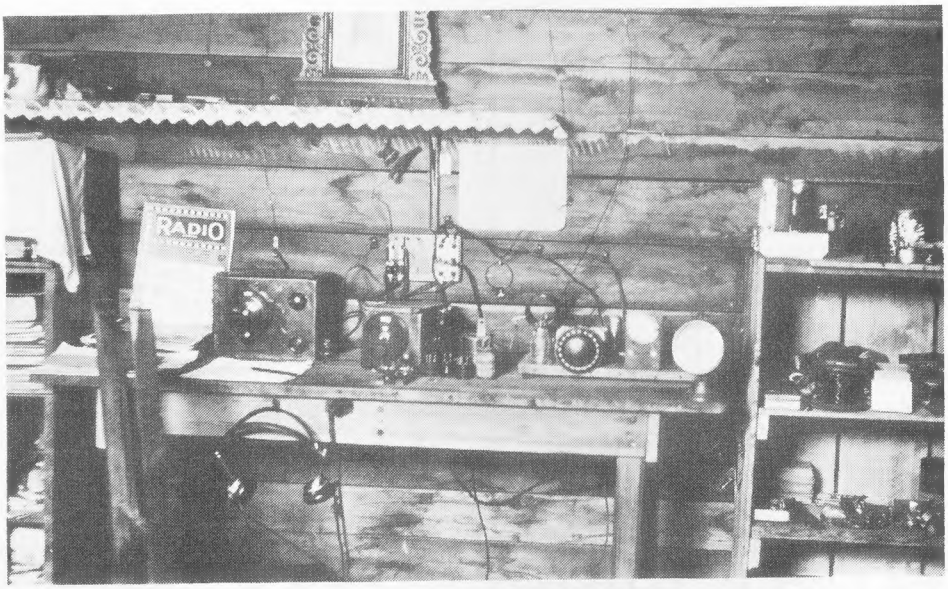
One night I had a great thrill-an SOS! I was able to copy most of the message. A ship, I copied the name of it and its position, was in trouble with a broken screw, off the Queensland coast. Next morning the news broadcast gave a full account of what I had heard the previous night.

In 1933, with much trepidation, I sat for and passed the AOCP exam. My dreams had at last come true.

The first thing I did was to print my call sign on a large piece of cardboard and hang it on the wall of what was to become my shack.

Now to build a transmitter and receiver. There were many problems as this was the Depression and finance was not plentiful, there was no mains power so all gear had to be battery operated. A small soldering iron had to be heated on a few coals in the wood-fire stove and only one joint could be soldered at one time as the heat would only be retained for a few seconds.

A two valve SW receiver was eventually constructed, for use with headphones. The transmitter was a TPTG using a single UX199 valve. A 4 volt accumulator was used with a rheostat to reduce the voltage for the filament. HT supply was provided by two 45V (B) batteries, which had been discarded from the BC receiver and had only 70 volts left in them.



Herb's equipment in February 1934.

The transmitter drew 10mA, so the input was .7 of a watt.

What a thrill the first QSO was on CW with a VK4, early one morning before breakfast. All VKs and ZLs were worked with 1 watt or less. Supplying HT voltage was the greatest problem. What a boon transistors would have been in those days of low voltages.

In an endeavour to improve the HT supply, I experimented with a modified Ford vibrator coil, which gave out a few more watts and made it possible to use phone with a grid modulator and a PMG microphone but the trembler points were not very reliable and would occasionally need a kick to keep them going.

Something more efficent was urgently needed and, after many sleepless nights, I was suddenly struck with a brainwave. I wondered if it would be possible to use a Model T Ford magneto as a power supply as it had 16 V shaped, permanent magnets bolted on the circumference of the flywheel and 16 coils of narrow copper strips, arranged on a stationary ring, with a spacing of about 1/32– (.9mm).

The output was about 25V AC and by means of a transformer, could be stepped up to whatever voltage is required. No one was able to tell me if this would be practicable, so the only thing to do was to try it. I mounted the magneto assembly on a wooden frame and drove it at about 2000RPM with a 2.5HP engine. The 16 magnetos and 16 coils would cause a reversal of current 16 times every revolution, which meant 32,000 cycles per minute or a little over 500 cycles per second. A special transformer, with turns per volt to match was built up. Very little inductance and capacity were needed to smooth the current at such a high frequency. The tranny was wound for 350V and the current was about 100mA or 35W - not very efficient considering the 2.5HP engine was fully loaded, driving the magneto.

A two valve MOPA transmitter was built up and used quite successfully for many years with the above power supply and with grid modulation, the input power was about 25W.

I have made many enquiries, both locally and overseas, regarding the use of a Model T magneto, as a power supply for an amateur transmitter and as far as I know I am the only one to achieve this.

Just prior to WWII, I acquired a Carter Genny-motor. It was 350V at 100mA, driven from a 6V car battery. For me, this was the ultimate of the time.

I delayed returning to the air after the war until 1955, when 240V AC mains reached the shack. After all the pre-war years, with limitations and unreliability of battery power supplies, it was thoroughly appreciated to be able to build high power transmitters and just plug them in.

The availability of cheap disposals equipment as a source of components, was also a big help.

After a few years on AM, the SSB transceivers came along with much higher efficiency and convenience.

What great changes we have seen during the last 50 years or so. In the early days we used to make many of our components. Fixed capacitors

Herb VK2UJ — 1937.

were made by overlapping .5 square inch (about 1 sqcm) of tinfoil separated by a piece of waxed paper from a breakfast food packet and bolted between two pieces of bakelite. That gave a capacity of approximately .0001mF or 100pF. To increase the capacity you increased the number of square inches of overlap or layers. Grid leaks were made with Indian ink.

Highly efficient insulators were made from small tomato sauce bottles or anchovy jars, sometimes a hole would be drilled in one end by means of a three-cornered file with turpentine as a lubricant.

Spacers for open wire feeders were made by oven baking strips of wood in bees wax. now there is an abundance of good quality insulation material for this purpose such as plastics, etc.

Homebrewing, ingenuity and resourcefulness of the pre-war amateurs was a necessity and they got a great deal of enjoyment and satisfaction from it, but how things have changed!

The manager of a well-known electronics retailer told me recently, some of his clients order a dipole antenna, cut to size with insulators and guys attached, ready to string up. **AR**

75th Nostalgia

From The Listener In - 8th August 1925. Contributed by Roy Hartkopf VK3AOH

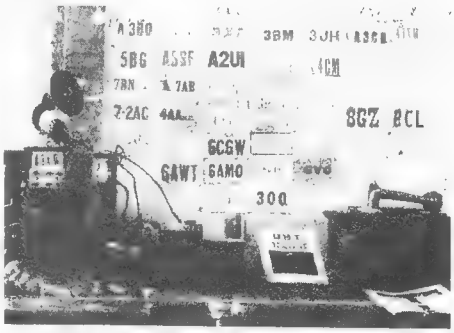
A photograph of the annual dinner of the Victorian Branch of the WIA, which was held in mid-1925.

NOSTALGIA

In 1925, C A Cullinan 3XW of Diggers Rest, operated a unique, but efficient experimental station. He used a Amplion 'dragon-fly' speaker as a microphone and one of the first 5 metre outfits in Australia. A special receiver operated between 5 and 25,000 metres, with batteries. A gramophone was used as a loud speaker, using the reproducer of the dragon-fly.

The station, using 1.1 and 2 watts, was heard in the USA. The antenna was a three wire cage, 10 feet (3m) long by 30 feet (9m) high.

Adapted from The Listener In - 11th July 1925
AR



STATION 3XW

WIA 75 AWARD GUARANTEE

The Wireless Institute of Australia is happy to be celebrating its 75th anniversary, and wants everyone to feel the same way.

Recently a couple of WIA 75 Award recipients have written to say they were not completely happy with their award.

In two cases a wrong call sign was written on the certificate, due to an error in reading the call sign on their handwritten award claim.

Another person found the award certificate arrived in the letterbox damaged and not suitable for display.

In these cases a new certificate is issued free of charge — satisfaction with this award is guaranteed.

WIA 75 Award Manager Jim Linton VK3PC **AR**

Another VZ200 RTTY System

Lloyd Butler VK5BR
18 Ottawa Avenue, Panorama, S.A. 5041.

Generation of RTTY tones and BAUD rate clock can be controlled from the keyboard using a programmable interval timer. Experimental hardware and associated computer programme have been developed incorporating such a system for RTTY on the VZ200.

Armed with no previous expeience in RTTY, the writer set out to adapt a VZ200 computer for the purpose. Had the ETI-Dick Smith kit been available at the time, the project might never have been started and purchase of a kit might have been the way to go. Notwithstanding this, the project was proceeded with, to an operational state, using a number of different ideas which could well be of interest to others experimenting with the VZ200.

THE HAREWARE

The circuit of additional hardware, plugged into the VZ200 memory expansion socket, is shown in figure 1. Serial encoding and decoding of the teletype signal is carried out by a communications interface (8251 USART). The teletype programme is stored in a 2732 4 K Byte EPROM.

An important difference, to that of the ETI system, is the inclusion of an 8253 interval timer which contains three independant programmable 16 bit counters. Two of these counters are used to generate the two teletype tones divided down from the computer clock. The third counter is used to feed the USART and determine the BAUD rate. The advantage of this system is that there are no oscillators to adjust for correct frequency and tones and BAUD rate are set to an accuracy, determined by crystal control in the computer. Furthermore, the tones and the BAUD rate are under the control of software and can be changed for the computer keyboard.

The USART BAUD rate control clock is fed at sixteen times the BAUD rate. (Note: Although one times the BAUD rate can be used, errors result in decoding if the BAUD rate is not exactly synchronous to that used on the signal being received.)

Output tones are square wave and these are shaped to reduce harmonics by an RC filter network.

THE PROGRAMME

The programme developed by the writer provides selection of the following modes of operation from the keyboard —

1 ASCII or BAUDOT codes

2 BAUD rates — 45.45, 50, 56.92, 74.2, 100, 110, 150, 300, and 600 Hz.

3 Tone pairs —

Mark Hz	SPACE Hz
1275	1445
1275	1700
1275	2125
2125	2295
2125	2550
2125	2975

4 Two buffer stores, 1000 Bytes each.

5 Message resident in programme.

CQ de VK5BR
RYRYRY... .. ..etc
The quick brown fox. ....etc 1234567890
de VK5BR Lloyd

6 Selection of split screen or normal screen. (Split screen is used to load the buffer at the same time as receiving. Normal screen allows full use of the screen for receive only).

7 Clear screen control.

8 Reverse receive BAUDOT letters/figures. (This is useful if a letter/figure switch character is lost or one is interpreted when it shouldn't be. Sometimes a whole line can be lost when this happens unless reverse is operated).

Included in the programme is automatic insertion of carriage return and line feed at the first space after each and every 50 characters. This is a good feature to prevent printers running over the end stop and over-riding the necessity to put in CRLF when required. Sending BAUDOT, letter/figure control is also initiated on the character after each space, independant of any control put in because of a letter/figure change. This reduces the error to one word in the event of a wrong change in decoding at the receive end.

The programme resides in an EPROM at memory locations COO3H to CDOAH. RAM space utilised in 8000H to 8900H. The RTTY programme is initiated from the basic monitor with two POKE statements and an X= USR (x). Return to basic monitor can be carried out at any time with simple commands from the keyboard.

The programme is written in instructions suitable for 8080/8085 or Z80 processors, but is dedicated to the VZ200 in that it calls in the resident VZ200 keyboard, character print and beep routines.

DECODING

From the point of view of reducing component parts, a phase locked loop system (such as the XR 2211 circuit) is the simplest way to go. On the other hand, all the experts say, that in the presence of noise, better performance is achieved with a filter type system and essential for reception on the HF bands.

Many circuits have been published for both types of decoders and since the decoder design has no bearing on the computer hardware and software design, further comment will be avoided on design. At this point it must be pointed out that it would be a fairly complex decoder which could cope with all the BAUD rates and tone combinations available for transmission from this computer system. These were selected from standards recommended in Amateur Radio last year, and were all included just in case they were required. It is unlikely that other than 45 or 50 **BAUDS** and 2kHz tones will get used on the experimental unit assembled and at present it is being operated with a 2kHz type filter system which will accept up to 100 BAUDS.

ASSEMBLY

The VZ200 attachment was made up using a general purpose printed circuit card, suitable socket fitted and hard wired. For the present, the attachment is unshielded and causes some interference to radio receivers. Fitting of a metal enclosure is a job still to be tackled. What is really needed is some industrious person to layout the printed circuit card and design an appropriate housing.

SUMMARY

A RTTY system for the VZ200 computer has been developed as an experimental exercise. Transmission tones and BAUD rate clock are generated from the computer clock. The programme is operational but no action has been taken to lay out an easily assembled printed circuit card and shielded enclosure.

The programme has not been included as it is 3338 Bytes of machine language. Those who contemplate construction many consult the writer about copying the programme. **AR**

I LIKE AMATEUR RADIO

I like amateur radio;
I really think it's fine
That I'll still be a "YL"
If I live to ninety-nine.

I like amateur radio,
And getting on the air,
Making friends around the world
And contacts everywhere.

You can talk to Lapps in Lapland,
Nepalese in Katmandu,
Malays in Kuala Lumpar,
Or Peruvians in Peru.

You can talk to dukes and dustmen,
Or communicate in Morse,
Experiment with A T V,
And RTTY of course.

Put together bits and pieces,
(Though at first the prospect balks;)
A diode here, condenser there,
And — listen to that — it talks;

Experiment with aerials,
It looks real good on paper;
But getting that lot in the air
Is quite another caper;

You can enter in a contest,
Gather points for an award,
Join a DX net, or "ragchew",
One thing's sure, you're never bored.

Yes, I like amateur radio,
And all the friendly sounds,
Removed from all the trouble and strife
With which this world abounds.

It's a satisfying hobby,
It will certainly do me;
Til they write beside my name the words
"Became a silent key." **JOY COLLIS.VK2EBX**

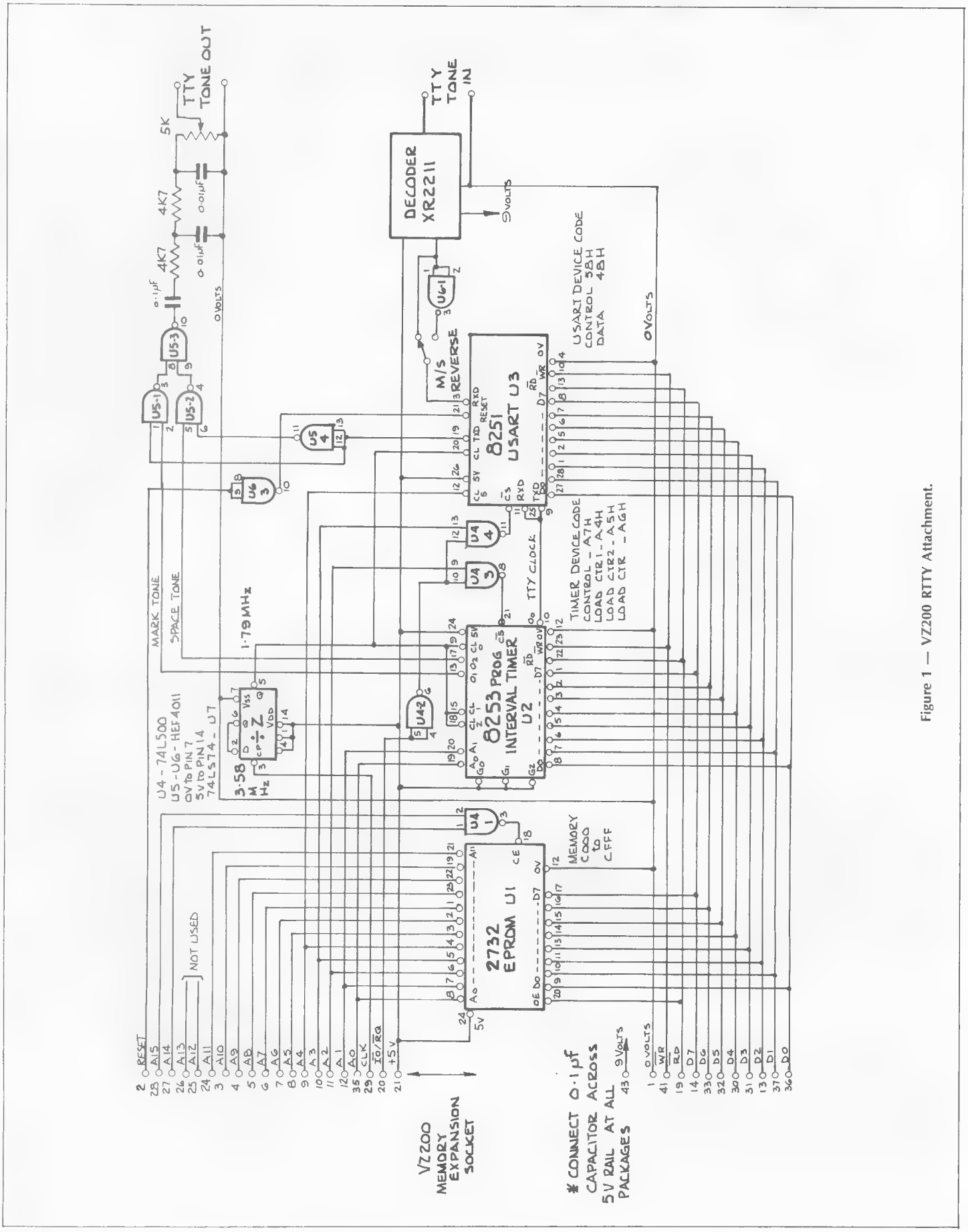


Figure 1 — VZ200 RTTY Attachment.

ADD ON MODIFICATIONS FOR THE SIEMENS TELEPRINTER

This is the second in a series of projects.
It's a power supply (5 volts) to power the other projects in this series.

Peter Fraser VK3ZPF
52 Heathfield Rise, Box Hill North, Vic. 3129

AN INBUILT POWER SUPPLY

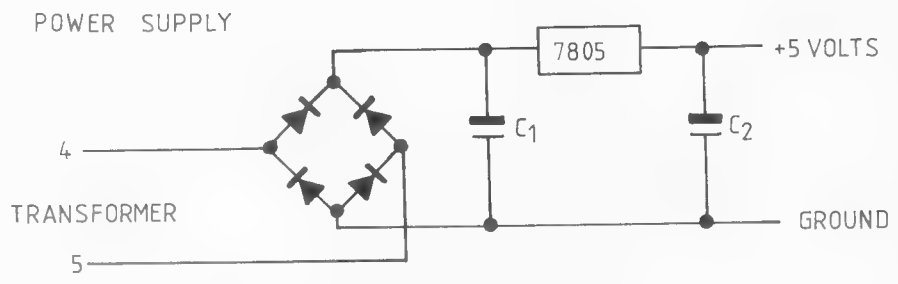


Figure 1 — Power Supply Circuit.

DESCRIPTION

The power supply delivers 5 volts DC at a maximum of around 500 milliamps: this can be constructed small enough to fit in the same case as the teleprinter's transformer.

PARTS LIST

C1, C2 — 100 UF 25 volt electrolytic capacitors.
7805 — 5 volt three terminal voltage regulator.
Bridge rectifier — type 'MB 1' or 4 1N4002 diodes.

CONSTRUCTION

The power supply can be built on to a small piece of matrix board small enough to be screwed inside the transformer case. *"Where is the transformer?"* you ask. Well, looking from the front of the machine, it's on the right hand side, towards the back. It has a red 'spark' on the cover. **Unplug your machine before removing the cover.** The AC side of the bridge rectifier is connected to the winding marked '4' and '5'. These are the top two connections on the left hand side of the transformer.

HOW IT WORKS

The AC from the transformer is rectified (made into pulsating DC) by the bridge rectifier. This pulsating DC is filtered by C1 to give a smooth DC voltage. The 7805 regulator reduces the DC voltage to 5 volts while C2 acts as a final filter capacitor. The 5 volts output is used to run the 'shift indicator' and a 'counter' to be described later.

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Phone enquiries: 288 3107
CONTACT Keith VK3ACE or David VK3UD
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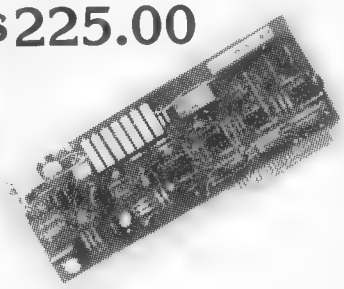
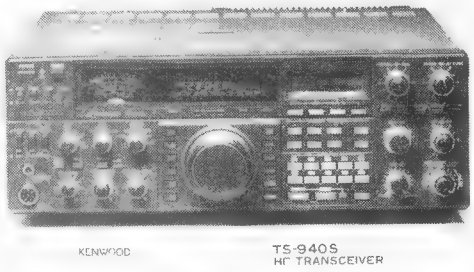


HAMPACK III MODEM

Turn your APPLE II & IIE or compatible computer into a communications terminal. Send and receive Morse code, RTTY and ASCII at any speed from APPLE peripheral slot. Complete with software and instruction manual.

FEATURES ARE:
★ 10k receive buffer
★ 10k transmit buffer
★ Split screen
★ Save buffers to disk
★ Retrieve text from disk
★ Brag statements
★ Auto CQ, ID, QTH, etc, etc.
★ Many other features too numerous to mention here
★ 2125-2295 Hz + 1300-2100 Hz Tones (1200-2400) opt.



VECTORIO PC-16 IBM COMPATIBLE COMPUTER
250k, 2 disc drives & colour graphics card

VIATEL FOR THE APPLE COMPUTER
Software modem & BAUD rate converters

WE SERVICE WHAT WE SELL —
In our fully equipped service department we cater for micro computers, amateur radio equipment, CBs (HF and UHF). Service contracts to trade also. Car sound components, hand tools, altronic distributors, extensive range of second-hand radios, computers and test equipment.

AR85

KNOW YOUR SECOND HAND EQUIPMENT

A Series to Help You Identify Amateur Equipment

Ron Fisher VK3OM
3 Fairview Avenue, Glen Waverley, Vic. 3150

Over the years, I have collected much information on a lot of amateur gear. It seems that perhaps the time is right to share it with you, the readers. It will, I am sure, be of use to buyers and sellers of second hand equipment and hopefully a source of information to newcomers to the hobby, who must be very confused with the various equipment types they hear quoted.

It is expected that this series will continue over many months and will be , more or less, random in the selection of gear to be covered. It will, in general, date from around 1960, but in some cases, may cover gear produced prior to this. I will also concentrate on gear that was sold here in Australia through normal retail outlets.

If any members have any thoughts on equipment they would like to see featured, please write to the above address.

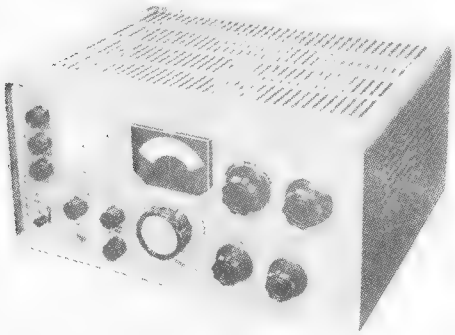
Due to space limitations, descriptions will only cover the major aspects of any particular piece of gear. In many cases, I may be able to provide more detail upon request.

What better place to start this series, than with the early Yaesu transmitters and receivers. Second hand values should be taken as a general guide only and can be subject to wide variation, especially with older units. Prices quoted assume the gear to be clean, working well and unmodified.

YAESU FL-100B TRANSMITTER

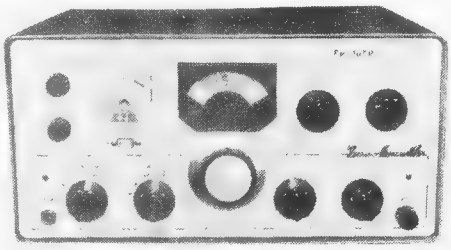
The first piece of Yaesu gear to be imported by Bail Radio and TV Service, was initially advertised in the March 1964 issue of Amateur Radio. It was a self-contained SSB/CW transmitter covering the 80 to 10 metre amateur bands. It used an all tube line up, with a single 6DQ5 in the final with around 60 watts PEP output.

The SSB signal was generated by means of a 455kHz mechanical filter. Both transmitter and power supply were contained in the one cabinet measuring 15x7x11.75 inches and weighed 35 pounds. The original price was $454 and estimated second hand value today would be around $100.



YAESU FL-200B TRANSMITTER

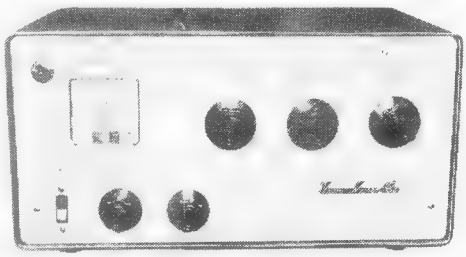
First announced in January 1966. The appearance is the same as the FL-100B but power output was increased to about 120 watts PEP, with the use of two 6JS6 tubes in the final. Second hand value is around $120.



YAESU FR-100B RECEIVER

Announced at the same time as the FL-200B, the FR-100B receiver covered the 80 to 10 metres amateur bands only.

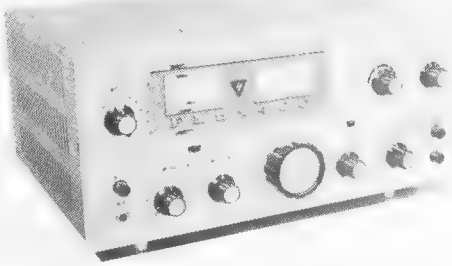
It was an all tube design and, like the transmitter, used a 455kHz mechanical filter. A single crystal filter was used in conjunction with the mechanical filter for sharper CW reception. Seventeen tubes and several diodes were used in a double conversion setup with the first IF being tunable and the front end crystal controlled. Crystals were supplied for all bands but coverage on 10 metres was limited to 28 to 29.200MHz. Coverage was in 600kHz segments. Performance was quite good, with excellent stability after a warm-up period. Provision was made to feed the VFO to the FL-200B transmitter for transceiving, but this didn't always work out very well due to variations in the heterodyning and BFO/carrier crystals in each set. Second hand value is around $125.



YAESU FL-1000 LINEAR AMPLIFIER

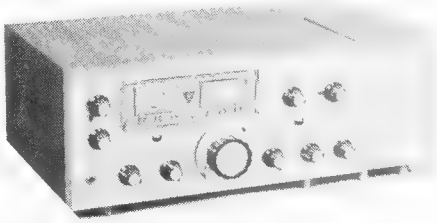
Again announced at the same time as the FL-200B transmitter. Housed in a matching cabinet and of similar size to the other units, the amplifier used four 6JS6 tubes in parallel, in a grounded grid circuit. With a plate voltage of 850 volts, the PEP input was claimed as 950 watts. Output would possibly reach 400 watts. As the cathode input was untuned, it would not be recommended to use it with a modern solid state output transceiver. Metering included plate and grid current, plate voltage and relative power output but no SWR meter was included.

A cooling fan was built in. Second hand value is around $150.



YAESU FLDX-400 TRANSMITTER

The new DX series equipment was introduced in early 1968. The styling was modernised to include a smarter cabinet with a rectangular brushed aluminium front panel surround and an illuminated meter. In general, the circuit was the same as the older FL-200, but improvements were made in the transceive ability with the matching receiver. The transmitter was self contained with in-built power supply, etc. 6JS6 tubes were again used in the final with around 120 watts output.



YAESU FRDX-400 AMATEUR BAND RECEIVER

Similar in appearance to the FLDX-400 and similar in design to the older FR-100, but up-dated in several aspects. Band coverage now included 160 metres. 6 and 2 metres could be included with optional converters installed in the cabinet. Another option was an FM detector.

By now a few transistors had crept into the circuit. Two were used in the tunable VFO, no doubt to improve stability. The two optional converters were also solid state and even ran to a FET in the RF stages. Provision was also made to crystal lock the receiver on a fixed channel. Quite a good receiver, with very reasonable performance. Stability was good after warm up, but not much better than the older model.

Second hand value, around $135.

Watch for the FLDX-2000 Linear Amplifier and others next month.

KENWOOD

TS-940S

HF TRANSCEIVER

The TS-940S is a competition class HF transceiver having every conceivable feature, and is designed for SSB, CW, AM, FM and FSK modes of operation on all 160 through 10 meter Amateur bands, including the new WARC bands. It incorporates an outstanding 150 kHz to 30 MHz general coverage receiver having a superior dynamic range (102 dB typical on 20 meters, 50 kHz spacing, 500 Hz CW bandwidth).

Engineered with the serious DX'er/contest operator in mind, the TS-940S features a wide range of innovative interference rejection circuits, including SSB IF slope tuning, CW VBT (Variable bandwidth tuning), IF notch filter, AF tune circuit, Narrow/Wide filter selection, CW variable pitch control, dual-mode noise blanker, and RIT plus XIT. The use of a new microprocessor with advanced digital technology controlled operating features, plus two VFO's, 40 memory channels, programmable memory and band scans, a large fluorescent tube digital display with analog-type sub-scale for frequency indication, and a new dot-matrix LCD sub-display for showing graphic characteristics and messages, all serve to provide maximum flexibility and ease of operation. In addition, a CW full break-in circuit, switchable to semi break-in, a built-in automatic antenna tuner, a solid-state final amplifier that is powered from a higher voltage source, a speech processor, all-mode squelch, and a host of other convenience features all add up to even greater versatility of use in fast-paced DX operations. With its power supply and antenna tuner built-in, and with its new whisper-quiet cooling system, the TS-940S is a complete, all-in-one type transceiver that brings tomorrow's sophistication to today's serious enthusiast.

Sold and supported by **PARAMETERS PTY LTD**
(Incorporated in Victoria)

PARAMETERS PTY LTD
PERFECTION IN MEASUREMENT

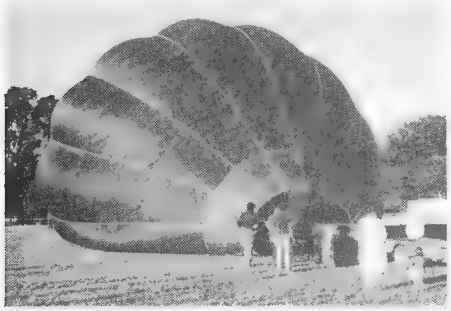
Melbourne Office: 1064 Centre Road, Oakleigh South, Vic, 3167. Phone: (03) 575 0222
Postal: Private Bag No 1, PO Oakleigh South, Vic. 3167. Australia Telex: AA33012

UP UP AND AWAY!!

Gil Sones VK3AUI
30 Moore Street, Box Hill South, Vic. 3128

Hot Air Ballooning is becoming an increasingly popular sporting interest. A number of balloon operators offer 'ballooning weekends'. One such operator is Balloon Rise, operated by Tony and Annette Norton in Stawell, Vic. Tony has been ballooning for many years and presently flies a balloon made by Kavanagh Balloons in Sydney.

Balloon flying starts early in the day. This is to take advantage of the cold morning air and the generally still conditions first thing in the morning. Cool conditions are needed to get the best lift from the balloon.



Inflating the Balloon in preparation for 'take-off'.

Soaring aloft.

During the Queen's Birthday Weekend the writer was at Balloon Rise for some flying and discovered another amateur, Ian VK3KCM, was there with the same intent. On this weekend Tony had enlisted the help of Chris Tuttle with his balloon and crew, due to the large numbers interested in flying.

As it happened, Ian and I both had two metre equipment with us and several contacts were made. These were both on simplex and through the Mt William and Mt Macedon repeaters.

The link between balloon and ground proved useful on occasions as the balloons go where the wind carries them. The recovery crew must chase them to refuel, recover and change passengers at intermediate landings. Radio contact was useful on these occasions.

Gil VK3AUI and two metres. Note the gloves, beanie and coat, necessary equipment for the chill frosty early morning flight.

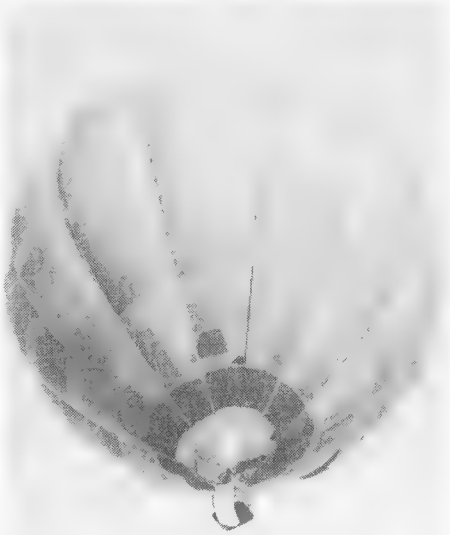
Ballooning is a great experience, soaring aloft with only the occasional roar of the burner breaking the tranquility. You drift with the wind. At times the balloon skims the tree-tops whilst at other times considerable heights are reached.

The balloons are approximately 25 metres high and 16 metres in diameter or about the size of an eight storey building. The take-off and flight are very smooth but a few bumps can occur on landing. They make a pretty good sail if a breeze springs up.

For mobile operation they offer freedom from ignition noise and an excellent antenna sight, however burner operation can be a problem – the noise from the burner blots everything out.

If any members would like to try ballooning there are several operators around Australia. Tony Norton of Balloon Rise, 19 Seaby Street, Stawell, Vic. 3380 can be phoned on (053) 58 3086. I am sure he would be delighted to send details to you.

Ian, at the front of the basket, operating two metres.



The roar of the burner blots out two metre operation.

THE AR STORY

Ken McLachlan VK3AH,
PO Box 39,
Mooroolbark Vic 3138

Many members are curious how a monthly magazine containing up to 80,000 words, such as Amateur Radio, is brought together from contributions of technical articles, general interest stories, photographs and the regular column sub editors.

Photographs courtesy York Press Pty Ltd, Graeme Hattwell VK3NGH & Ken McLachlan VK3AH

It is hoped to give you an insight in what transpires from when an article to an advertisement is received in the Federal Office, until the issue is placed in your letter box, by your trusty postal officer.

A full schedule for the year, after consultation with the companies involved is made up. This schedule comprises all deadlines, from the latest acceptable time copy can be received, which is noted in each AR near the index, to delivery is made to the typesetters, received back, proof read, pasted up continuing through until it is delivered to Australia Post.

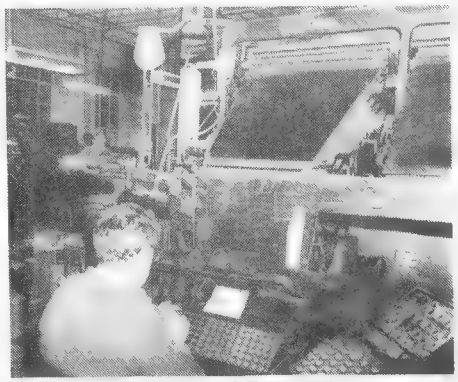
All contributions received are pre-read, where spelling and grammatical errors are corrected. If photographs are included these are marked and filed. Technical articles are handed to the Technical Editors at a Publication Committee meeting, held each month to be technically edited and corrected if necessary, and returned to the Production Company, if not before, for processing at the next meeting. Each technical article is acknowledged and drawings if necessary are sent to the drafting crew.

It is necessary to retype some articles in double spaced type, if they are presented in difficult to read, close spaced handwriting. As an example, most "HAMADS" are sorted into alphabetical order and typed, due to the variance of presentation by the advertiser. (A minority of members send their "HAMAD" in on the back of a bus ticket written with a "thumbnail dipped in tar"). This is necessary so that scraps of paper are not lost or mislaid and copy is easy to read for the typesetter. The article is re-read and "marked up" to recognised Australian Standards, which is the means of instructing as to the type to be used, Size, width and justification. Each article is the numbered and entered in a master log book. When an adequate amount of work has accumulated it is delivered to one of the companies for typesetting.It must be remembered that typesetters work at high speed and must be able to read copy at a glance. AR language is foreign to them and whilst amateurs can read between the lines and guess a word, they can't. The ideal copy is double spaced upper and lower case copy with a 35mm margin on the left hand side, but budding authors who have not got the facilities of a typewriter, don't be deterred. Neat double spaced handwriting or printing with a 35mm left hand margin is acceptable. The space allows for clarification of a word and the insertion of instructions.

TYPESETTING

Every newspaper and magazine, before printing, has to be typeset. In 400 years, between the invention of the printing press and until recently, type was produced as indentations in metal. This was a primitive, arduous and time consuming operation in comparison with modern computerised typesetting methods employed in the industry today.

Our main typesetters, chosen by tender, are York Press Pty. Ltd, a business that was first



A Hot Metal Typesetter.

established in 1933 as a weekly newspaper and now have a staff of 100 employees. In addition to modern typesetting equipment, York Press operates Art and Film Departments, servicing a range of printing presses suitable for both multicolour and newspaper work. A large Bindery department is also included in the factory equipment, which allows the company to produce a variety of promotional material and magazines similar to Amateur Radio.

They were one of the first companies in Australia to see the advantages of modern technology and make the change over from metal composition to computerised typesetting. The computer, a Compugraphic MCS8400 typesetter with six terminal keyboards can output any number or character, except mathematical symbols, in a variety of sizes and styles. These styles are referred to as fonts and separate fonts may be *light type, ***bold type**, **italic type*, ***bold italics***, *condensed types etc as designated by the producers. Serif typefaces have little edges on the letters which make for easier readability.

Computer Typesetter.

THE TYPE

The above sub heading, as an illustration, is in a Sans Serif heading set in 10 Point Bold. The balance of the article is set in 8 Point Oracle. Printers have their own measure based on a Point and there are 12 points to an em and 6 ems to one inch. The Typesetting Department is able to produce from 6 point to 72 point characters with a choice from sixty four different fonts. These columns are set at 14 ems wide.

A trained operator starts with the copy to be typeset. It is essential that this copy is legible, preferably double spaced typed in upper and lower case and on one side of the paper with a margin of 35mm on the left hand side. This margin space allows the producers to correct spelling or grammatical errors, prepare a design and designate instructions to the operator. The data is then keyed in with the necessary commands from a conventional keyboard with extra keys for entering commands. The input is viewed on a Visual Display Unit (VDU). Some operators can type up to and in excess of 60 words per minute (WPM), when reading from first class, marked up, copy.

The computer contains an in-built programme for hyphenation, spacing and justification. When the end of one line is reached, the computer ensures it aligns with the other lines (justification). If a word break is necessary, the computer knows to place the hyphen in the correct spot. This information is stored on disc and fed to the electronic photographic typesetter which operates as a high speed, high resolution computer printer.

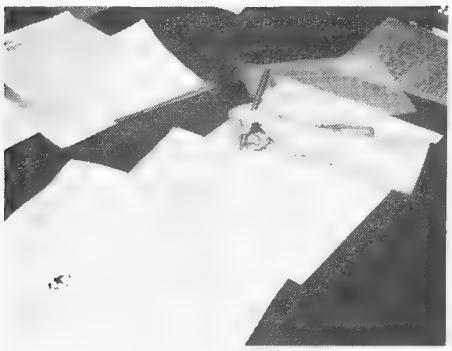
The printed output is on galleys, with left and right margins aligned, on special paper (Bromides). These are then photostated and proof read for errors against the original copy, alterations are marked and sent back to the typesetter for corrections. After correction another bromide is produced and read. If correct, it is again photocopied and two copies are sent to the producers for any missed errors or literal corrections. The producers "proof read" all type setting against the original copy. If any errors are found, they are marked and returned to the typesetters for correction. The corrections are made, checked and a bromide is then produced with photocopies, which becomes the basis of the magazine article.

Whilst copy is being set, the colour cover is being separated as outlined in the article on p20 of September 1984 Amateur Radio.

Two other typesetting companies, with different equipment but working on similiar lines also do work on the magazine, generally to a much lesser degree. The basic reason for this is that in the case of equipment breakdowns, which are very infrequent, staff sicknesses and when peak loading occurs, the producers have the option of delegating the work to a supplier for the quickest turnover, to keep within the scheduled printing dates.

A "Dummy" of how the magazine is to be laid down by the printers is produced, to the last detail, which includes the positioning and sizing of photographs, diagrams, cartoons, captions, logos, rules and borders etc.

The "Dummy" is checked as to continuity as it is laid down. Not in the sequence of the pages that you read (ie page 1, 2, 3, etc) but 1 and 64, 2 and 63 etc. The reason for this is the way that they are made up and laid on the printing plates.



Making-up a 'Dummy'.

The next process is to index the magazine, which is done by a home computer, and note all captions for photographs, fillers etc which are used. This again is rechecked and sent to be typeset. The producers place all artwork into numbered envelopes for each appropriate page. The photographs, artwork and advertising are noted as Photo 1, Cartoon 1, Circuit 1, 2, 3, etc as required to correspond to the "DUMMY" and page of the magazine. Separately, all the typesetting bromides are numbered to the page that they appear on. It is then delivered to the printers for make up with the proof read index and captions, which have been collected from the typesetter in a separate part of the premises.

The Index is Generated on a Home Computer.

THE PRINTING PROCESS

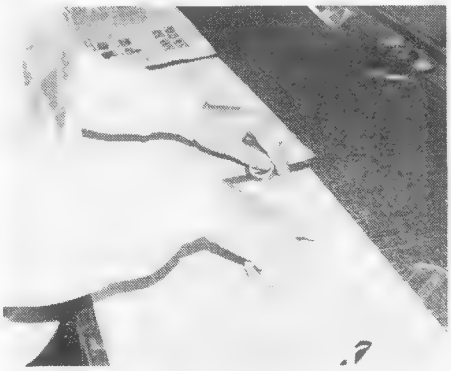
The magazine is printed by the Waverley Offset Publishing Group on a yearly contract, won on tender, for the last five years. This company has grown from a small business established in 1964, to a company with multi-associations in the printing industry, and prints magazines such as this, newspapers and advertising material. They employ a staff of thirty two, with expertise in various printing techniques to cater for their needs.

The producers layout (the "dummy"), is delivered to the printers by a scheduled date arranged for the whole tender period, in page numbered form, as described above, with the accompanying envelopes of artwork.

The "dummy" pages are sequentially pegged up at the back of a work bench on which is laid the correct number of blank "make up" sheets (pages) with printed guidelines in faint blue, termed "dropout blue" which the camera does not reproduce. The compositor, positions any advertising material first by passing it through a waxing machine, causing it to be pressure sensitive and by the use of a small roller allows it to adhere to the make up sheets, as per the "dummy" and then proceeds to lay in the editorial material in the same manner.

Photographs to be used are then screened by

The Compositor making-up the Page Artwork.



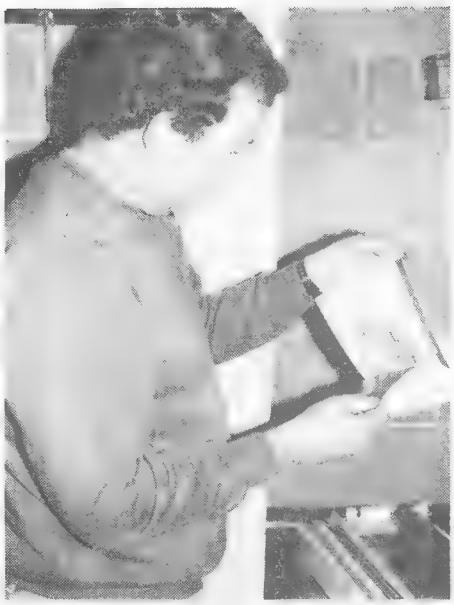
Border Tape being applied to the Artwork.

a computer controlled camera that segregates the picture or transparency into thousands of tiny dots so that it does not print as a solid black, onto bromide paper at the appropriate enlargement or reduction required to suit the pre-determined space that has been allowed on the page and any line illustrations or circuit diagrams are also bromided to the correct size prior to waxing.

The Camera Operator applies the grey screen to the Bromide Negative.

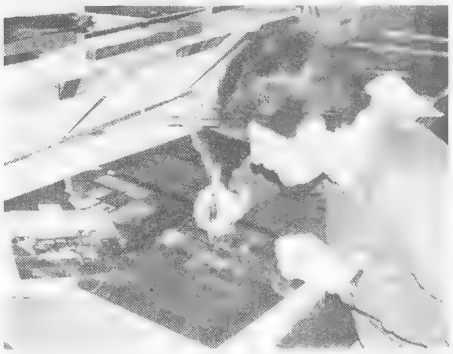
When all copy is in position, any borders, boxes or rules are made according to the producers instructions, with a large variety of adhesive border tapes that are available to complete the art work.

After completion, final proofs are thoroughly checked by the producers, last minute corrections made if necessary, the page is evaluated for



The negative and Receiver Papers are prepared to reveal the finished Screen Bromide.

aesthetics, initialled as approved and sent to camera, to have negatives made prior to plate making. Occasionally, human error or Mr Murphy intervenes and mistakes are missed.



Page Negatives being prepared for Plate Making.

Setting up the Process Camera to make a Screened Bromide.

AR Cover Negatives in the final stages of preparation for Plate Making.

Feeding the Exposed Plate into the Automatic Plate Processor.

The Developed Plate emerges from the Processing Machine.

The film after development, is opaqued to remove any unwanted spots, shadows and cut lines and then imposed into eight page flats in printing sequence prior to plate making. These are then laid in position on a light sensitive anodised aluminium plate which is 0.3 millimetres thick. These are placed on a burning down frame which creates a partial vacuum, to ensure good contact, between the film and plate and exposed to a 8kW pulsed Zenon lamp for approximately one and a quarter minutes. The plate is removed, then automatically processed to remove the unexposed areas, leaving an ink receptive image on its printing surface.

THE PRINTING PRESS

The finished plates, containing the page contents, are printed on a Web-offset press which prints the magazine in 64 page sections and folds them to 16 page segments, in one operation, from large reels of Australian made paper, each weighing approximately half a tonne.

The ink content and quality control is continuously monitored and the processed product is placed on pallets ready for the next operation.

The covers, which are printed in a similar manner are done on smaller two colour sheet-fed presses, from pre-cut sheets, in full colour by two passes through the machine, on gloss art paper. These are printed two up and guillotined prior to binding.

The Offset Printing Plate being applied to the Plate Cylinder prior to printing.

Checking the Web Section of the Text.

Printed and Folded Sections being delivered from the Press Folder.

Text Sections being printed on the Web Offset.

Colour Covers are printed two-up.

Binding Process.

Finished magazines are packaged for Despatch to the Mail Service.

BINDING

When all the magazines and covers have been printed and dried, they are transported within the factory, to the bindery to be collated, stapled inserts placed in position (if any), stapled and trimmed to size.

This operation is performed by a high speed automatic collator/stitcher/trimmer from which the finished magazines emerge to be placed in cartons ready to be despatched to the mailing company.

THE MAILING PROCESS

Mailing of the magazine is done through Automail Pty. Ltd., a direct mailing company that has processed Amateur Radio for over a decade. This company has grown with the demands of their clientele, investing in modern mail processing equipment as their business expanded.

Each monthly magazine is scheduled up to twelve months ahead, to arrive at their premises at a particular time on a certain day, from the printing and binding process, as are the labels and any inserts that may be required to be enclosed in the magazine. This is important, as the company does handle anything from 100 to 150 thousand units to be mailed per day and tight scheduling is vital to ensure that the magazine arrives in the recipients mail box on time.

Amateur Radio up until August, before mailing, went through several processes. The first, involved the listing containing the names and addresses which were generated from the members list, by the computer in the Federal Office. This list, when received two days prior to the magazine, was fed through a Cheshire machine which automatically cut the multi printed addresses to label size and adhered them to the envelopes. These were then held in stock until the magazine arrived. The automatic Cheshire machine has a capacity of 8000 units per hour when running at full speed.

Manual Sorting Area at Automail.

At the completion of this process the envelopes were progressed to the Sorting Area, where they were manually sorted into their postcode groups, to obtain concessional Registered Publication mailing rates, prior to the insertion of the magazine.

The magazines, on their arrival were channelled either to the manual area, if inserts were to be collated into the magazine, or direct to the mechanical insertion machine where the magazine was automatically inserted into the envelope and sealed at speeds of up to 2500 units per hour. Magazines with inserts were then handled in the same manner.

WIA Computer generates the Address Labels.

Inserts being Automatically Folded.

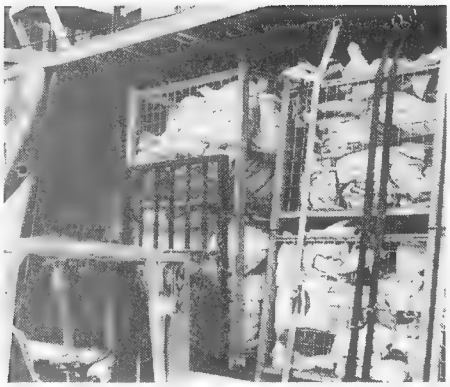
Inserts being Collated into Magazines.

The new method, quite modern in mail processing, is plastic wrapping, as you have received this issue of Amateur Radio. This machine can adhere address labels from the Cheshire machine that have been generated on the WIA's computer, collate up to six pieces inside each issue, heat seal, and operate up to 7,000 units an hour. This form of processing, includes a significant saving in cost and time.

The finished product is segregated into Australia Post preferred post code listings, placed in mail bags, appropriately labelled and are then ready for despatch to Australia Post.

The management of the Company stress the importance of co-ordination of the mail processing, as it is the vital factor in the scheduling of all material, arriving prior to or at the appointed time to obtain a fast, efficient and cost-effective result to you, the member receiving your magazine on time.

Bagged Magazines despatched from Automail.

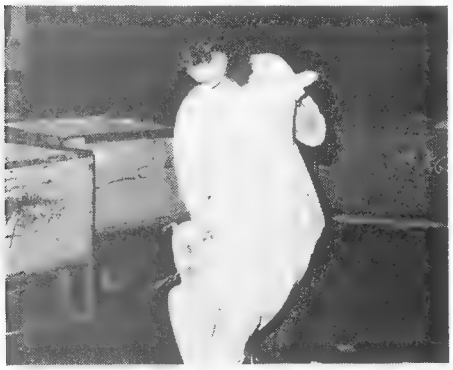


Labelled Bags arrive at the CME from Automail.

AUSTRALIA POST

The bagged magazines are picked up from Automail with other publications for posting and taken to the unloading bays at the State Mail Centre (SMC) formerly known as the Central Mail Exchange (CME), located at the corner of Bourke and Spencer Streets in the city of Melbourne. This building has quite a history, having been built in 1916/1917 and became the Melbourne General Post Office (GPO) in the latter years. The cost of construction is reported to have been $250,000.

The building was also occupied in June 1917 by the Deputy Postmaster General (later Director General), and most other administrative staff. In the 1960s it lost its status as the Melbourne GPO and became known as the CME, being the clearing house for 90 percent of Victoria's mail until 1975 when the regional mail centres commenced to operate.



Sorting into Mail Areas.

The labelled bags, not exceeding 16 kilogrammes in weight, designated by Post Codes on attached labels and contained in large metal baskets, are off loaded with a fork lift, stacked and sorted into different mail areas according to their designation, interstate, intrastate and overseas. The interstate are forwarded direct to their respective SMEs. The intrastate are forwarded to the appropriate City Delivery Centre, seven metropolitan and five country Mail Centres.

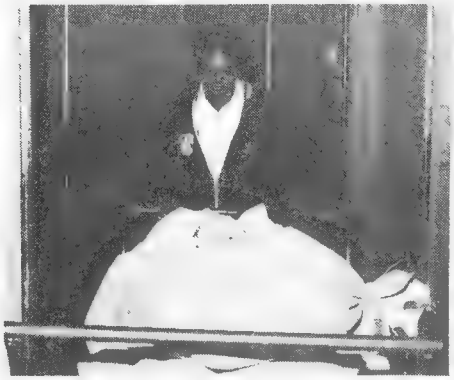
The magazines at the respective Mail Centres are again segregated into preferred Post Code areas and sorted to be forwarded to their destination Post Office, with other mail.

On arrival at the destination Post Office, they are again sorted to respective postal delivery rounds by the Postmen and women, responsible for that particular area.

From the arrival in each state the delay to the recipient is minimal, considering the handling involved, and happy WIA members have considerable reading ahead of them, until looking forward to the next issue.

Sorting at the CME.

Sorting Mail Bags.



Despatch to Mail Centres throughout Australia and Overseas from the CME.

Sorting at the Destination Post offices.

Postman, Richard Winterburn, delivers AR to Peter Gibson VK3AZL.

After reading this, it is hoped you will have a better understanding of the production of your Society's monthly magazine and may be enthused into writing a technical or general interest article for publication and introducing one new member at least to the oldest Radio Society in the world.

ACKNOWLEDGEMENTS

The following have assisted with their technical expertise, time and advice on the preparation of this article.

Mr Simon Rubenstein, Director, York Press Pty Ltd.
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Mr Graeme Hattwell VK3NGH, Production Manager, Waverley Offset Publishing Group.
Ms Elsebeth Donnerborg, Account Manager, Automail Pty Ltd.
Mr Peter Hayes, Sales Manager, Automail Pty Ltd.
Mr Jim Foley, Manager, Public Relations, Australia Post.
Mr Mike Chandler, Public Relations Officer for Victoria, Australia Post.
The Management and Staff of the Central Mail Exchange, Melbourne.
Mr Don Peake, Postmaster, Mooroolbark Post Office and Staff.
The Management and Staff of Companies connected with the production of Amateur Radio.

Give all you can on Legacy Day Friday Sept 6.

This year Legacy needs over one million dollars to continue helping the 107,000 widows and children in their care.

CALCULATE BEAM HEADINGS AND GREAT CIRCLE DISTANCES

Fred Robertson — Mudie VK1MM
Box E46, Queen Victoria Terrace, ACT, 2600

```
10 REM ****************
20 REM * BEAM HEADINGS *
30 REM ****************
40 CLS
50 D=1 K=111.12 M=57.2957795 N=60:S=69.06
60 PRINT"GREAT CIRCLE DISTANCE & BEARING"
70 LOCATE 1,4:PRINT"Enter values in whole degrees and decimals. Use -ve Prefix f
or South Latitudes and East Longitudes"
80 IF D<>1 THEN 130
90 A=-35.3:A=A/M
100 L1=-149.133
110 LOCATE 1,8:PRINT "ENTER DX QTH"
120 INPUT A$
130 INPUT "LATITUDE";B:B=B/M
140 INPUT "LONGITUDE";L2
150 L=(L1-L2)/M
160 E=SIN(A)*SIN(B)+COS(A)*COS(B)*COS(L)
170 D=-ATN(E/SQR(1-E*E))+1.57079
180 C=(SIN(B)-SIN(A)*E)/(COS(A)*SIN(D))
190 IF C>=1 THEN C=0 GOTO 210 ELSE IF C<=-1 THEN C=180/M:GOTO 210
200 C=-ATN(C/SQR(1-C*C))+1.57079
210 C=INT(C*M)
220 IF SIN(L)<0 THEN C=360-C
230 R=180+C
240 IF R>=360 THEN R=R-360
250 R=INT(R)
260 CLS
270 LOCATE 4,1:PRINT"GREAT CIRCLE BEARING & DISTANCE"
280 LOCATE 8,8:PRINT A$
290 LOCATE 8,10:PRINT"Bearing"C"Degrees (Short Path)"
300 LOCATE 8,12:PRINT"        "R"Degrees (Long Path)"
310 LOCATE 8,14:PRINT"Distance" INT(N*D*M)"NM"
320 LOCATE 8,16 PRINT"        "INT(S*D*M)"Miles"
330 LOCATE 8,18:PRINT"        "INT(K*D*M)"Km"
340 LOCATE 4,22:PRINT"Press any key to continue..."
350 IF INKEY$="" THEN 350
360 CLS
370 GOTO 40
380 END
```

This is a programme for calculating beam headings and great circle distances. It is intended for the AMSTRAD CPC 464, but can be easily modified for any of the System 80 or Commodore variety computers.

To modify the programme for individual locations, it is only necessary to change lines 90 and 100, eg in the copy Canberra is listed as (line 90) — 35.3, and (line 100) as — 149.133.

Southern latitudes for the DX station should be entered as negative values, and eastern longitudes should also be entered as negative values. The programme will give both short path and long path bearings and the distances in nautical miles, statute miles and kilometres.

It is a fairly simple programme. Given it ease of modification to the more common computers, it could be useful.

AR

TRY THIS

240 VOLTS 50Hz METER

Stan Widgery VK3SE
8 York Street, Ballarat, Vic. 3350

Portable AC generating units can have wide variations in the frequency of their outputs due to load condintions affecting the alternator speed. The frequency meter shown in this article can be used to indicate 50Hz operation.

The zeners can be any voltage between 6V and 12V. The 25k ohm resistors may have to be adjusted to suit the zeners.

The meter is calibrated for 50Hz by using mains power as a reference.

A variable voltage AC supply can be used to ensure the zeners are working, as there should be no variation in the meter reading with different voltages.

Other frequencies can be calibrated with a good quality audio oscillator.

AR

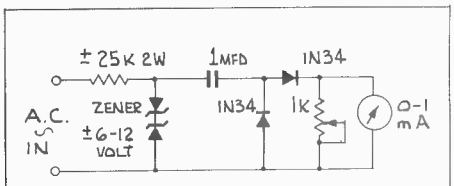


Figure 1

1985 VK/ZL/OCEANIA Contest

Announcing the 1985 VK/ZL/O Contest to be held on the first two weekends in October.

SSB for 24 hours from 1000Z 5th October 1985
CW for 24 hours from 1000Z 12th October 1985

This is a special contest for it commemorates the 75th anniversary of the Wireless Institute of Australia and is the 50th VK/ZL contest.

There will be awards for the top scorer on each continent, these will take the form of leather bound log books, and medallions will be awarded to top scorers in countries that have more than 10 logs submitted. Further certificate awards will be made at the discretion of the contest manager.

For the top scorer in VK, AMCOM of Melbourne have donated a prize valued at $350. TRICITY HOUSE in New Zealand have donated a triband beam to the top scorer in that country. So the contest is well worth entering this year. These prizes will be awarded to the top scorer in each country including both phone and CW, get that key out NOW and start practising.

RULES — Overseas Entrants

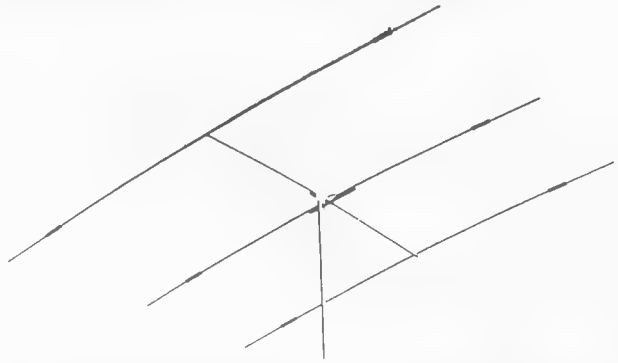
1. There are the following sections in the contest
   (a) Transmitting Phone
   (b) Transmitting CW
   (c) Receiving Phone and CW combined
2. Only one contact per mode per band is permitted. All bands are permitted except WARC bands.
3. Scoring
   For stations operating outside OCEANIA score two points for each contact with a VK/ZL or OCEANIA station. OCEANIA stations score two points for all contacts.
4. Final Score
   Multiply total QSO points by the sum of all VK/ZL/O prefixes on ALL bands. (The same VK/ZL/O prefix worked on a different band counts as a separate unit).
5. Exchange
   Five or six digit numbers composed of the RS(T) report plus a three digit sequence number beginning at 001 and increase by 1 for each QSO on that band.
6. Logs
   A separate log is required for each band and mode (Different people will be checking different bands). It must show — Date, Time (Z), Callsign of station. Exchange sent and received. Underline or highlight each new VK/ZL/O prefix.
   Summary sheet to show CALLSIGN, NAME AND ADDRESS Equipment Details, QSO points for that band, Total VK/ZL/O prefixes worked on that band.
   Signed declaration that all rules and regulations were observed.
   Send logs to:—
   W.I.A. VK/ZL/O Contest Manager
   1 Noorabil Court
   Greensborough
   Vic 3088
   Australia
   Logs to arrive by 31 January 1986
7. SWL Section
   A VK/ZL/O station must be heard in a contest QSO, log the following information. Date, Time (Z), Callsign of VK/ZL/O station, Callsign of the other station and the Exchange, scoring and summary sheets as detailed above.
   Phone and CW scores will be combined for SWL section.

NOTE: OCEANIA stations are those which qualify as Oceania for WAC.

RULES for VK/ZL STATIONS

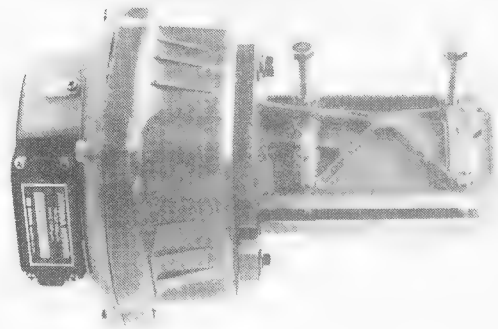
1. There will be five sections for VK/ZL these are:-
   (a) Transmitting Phone — 24 Hours
   (b) Transmitting CW — 24 Hours
   (c) Transmitting Phone — 8 Hours
   (d) Transmitting CW — 8 Hours
   (e) Receiving CW + Phone Combined
   2. Only one contact per mode per band is permitted. All bands are permitted except WARC bands.
3. VK/ZL Stations are permitted to contact each other only on 160 and 80 metres. VK/VK, ZL/ZL, and ZL/VK contacts are all permitted.
4. SCORING
   Different points are allocated for contacts on different bands these are 160m — 20, 80m — 10, 40m — 5, 20m — 1, 15m — 2, 10m — 3.
   Total score will be total QSO points multiplied by total number of prefixes worked. The same prefix on a different band is counted. Note K1, W1, WA1, AA1, N1 are all different prefixes, W1AAA/6 would count as W6 not W1.
5. Exchange
   Five or six digit numbers composed of the RS(T) report plus a three digit sequence number beginning at 001 and increase by 1 for each QSO on that band.
6. Logs
   A separate log is required for each band and mode (Different people will be checking different bands). It must show — Date, Time (Z), Callsign of station, Exchange sent and received. Underline or highlight each new prefix.
   Summary sheet to show CALLSIGN, NAME AND ADDRESS Equipment Details, QSO points for that band, Total prefixes worked on that band.
   Signed declaration that all rules and regulations were observed.
   Send logs to:—
   W.I.A VK/ZL/O Contest Manager
   1 Noorabil Court
   Greensborough
   Vic 3088
   Australia
   Logs to arive by 30 November 1986
7. SWL Section
   A VK/ZL/O station must be heard in a contest QSO, log the following information. Date, Time (Z), Callsign of VK/ZL/O station, Callsign of the other station and the Exchange, scoring and summary sheets as detailed above.
   Phone and CW scores will be combined for SWL section.
8. Awards
   Awards will be made to the top scorer in each section from each country. Awards for top scorers in each call area or on a single band may be given at the contest manager's discretion (determined by the number of entrants). The prizes which have been donated will be awarded to the top scorer in each country determined by adding the Phone and CW scores.

SUPPORTED BY TRICITY HOUSE



The WIA 75th Anniversary Committee thanks Don McKay and Tricity House for their support of the VK/ZL/O Contest in this, the WIA's Anniversary Year.

SUPPORTED BY AM-COMM ELECTRONICS



The WIA 75th Anniversary Committee thanks Fred Mackiewicz and Am-Comm Electronics for their support of the VK/ZL/O Contest in this, the WIA's Anniversary Year.

THE ROLL-UP

A portable antenna for 2m.

Chris Carter VK6FC
37 Ashfield Parade, Ashfield, WA 6054

Users of handheld transceivers will know how often the "rubber ducky" antenna is just not good enough. With this antenna you will gain three or four S-points over your usual signal. You can roll it up, take it with you and have it ready in seconds whenever you want to operate portable handheld. It's so cheap and easy to make, you can leave several around the place ready for immediate use. All you need is a few metres of RG-58 or equivalent coax, a plug, a few odds and ends and an SWR meter for tuning. To use, simply unroll, hang it from a convenient twig or nail and start talking.

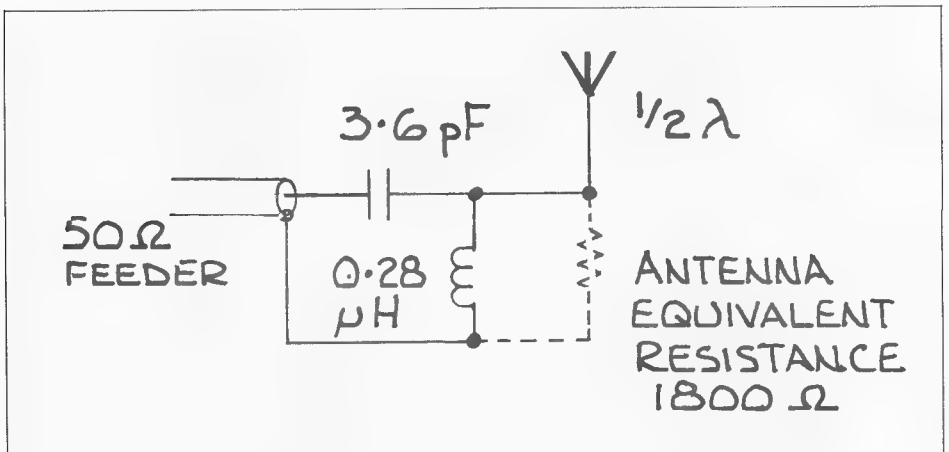


Figure 1 — The Roll-up Equivalent Circuit.

DESIGN

The antenna is an end fed half wave radiator made from RG-58 coax. Its feed point impedance of about 1800 ohms is matched to 50 ohms by an L-network. See figure 1.

The capacitor and inductor are stubs, also made from RG-58 coax. If you use coax with characteristics significantly different from RG-58 then you will have to adjust the dimensions.

CONSTRUCTION:

Make the radiator and inductive stub first. See Figure 2. Make the capacitive stub by removing exactly 10mm of jacket and braid from the feedline, about 50mm from the end. Connect the braids and stubs as shown.

Hang the assembly in the clear and carefully trim the open stub while checking the SWR across the band. Keep the inner 1 or 2 mm longer than the braid to prevent accidental short circuits. When the SWR begins to fall proceed very carefully because 2mm changes the resonance by about 500 kHz.

Finish by attaching a nylon loop and covering the join with tape or heatshrink tubing. If you fill the gap with silicone it will lower the resonance by a few hundred kHz so allow it to cure before tuning. The gap and top are high impedance points so keep them clear of conductors during use.

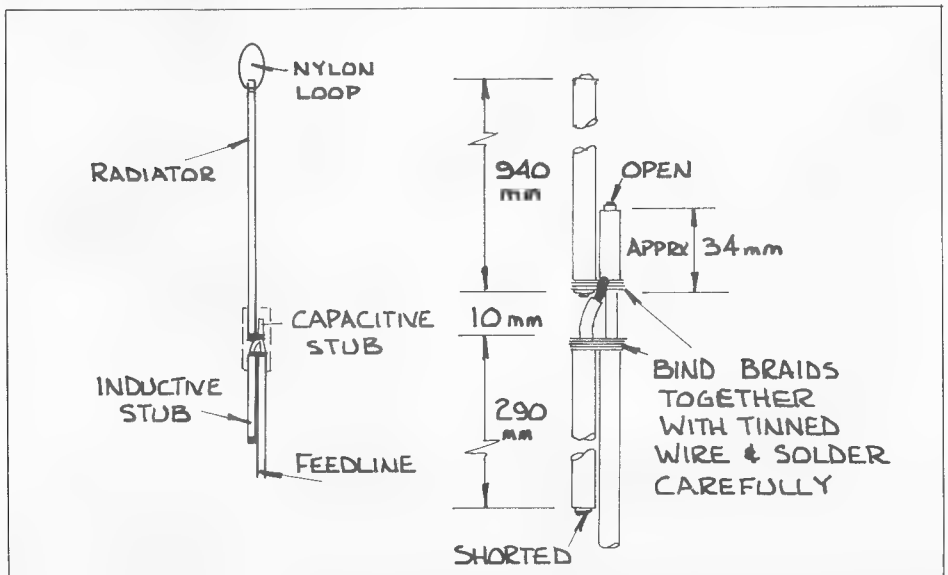


Figure 2 — Construction Details.

PERFORMANCE:

I have consistently obtained between 15 and 25 dB gain over a "rubber ducky" in simplex QSOs. The SWR is better than 1.1 : 1 from 146 to 147 MHz, and 1.5 : 1 at 145 and 148 MHz.

Note: Chris is editor of the WA VHF Group Bulletin. This article first appeared in the Bulletin in September 1982 and was recently revised and re-published by popular request in March 1985.

WHAT IS THE INTRUDER WATCH?

The purpose of the Intruder Watch is to monitor the amateur bands for unauthorised transmissions and work towards the removal of the offending stations. It should be established that the intruding station is appearing on a more or less regular basis. It is pointless to report a signal, eg a carrier, heard once only, as it may never be heard again.

If you hear a station you suspect to be an intruder, make a note of the details and listen again the next day, or on the same day the next week. It may be a regular sched he is keeping or he may have scheds at appointed times at several times each day.

If you are satisfied that he is a regular, and IS, IN FACT AN INTRUDER, then go ahead and send in a report. The Intruder Watch is only concerned with intrusions into the amateur bands of frequencies, by governmental, military and commercial stations. Pirate operators and the like should be reported to the DOC.

You should look for the date, time (UTC), mode, signal strength, frequency of operation, and his identifying call sign, if heard.

Many intruders do give call signs, but this does not mean that it is then any easy task to have them removed from the amateur bands. But it is a starting point, and simplifies things somewhat. You will find that a great many intruder stations do come up on a regular basis, and they can be monitored at will.

Special intruder log sheets, or further information, may be obtained from the Divisional Intruder Watch Co-ordinators or from the Federal Intruder Watch Co-ordinator, Bill Martin VK2COP, ex VK2EBM QTHR. Send your report this month and share the load....

from BARG News, July 1985

160 METRES IN THE USSR

Summary translation by Dex Anderson W4KM
From Radio #1 of 1985.

Effective from the 1st January 1985 the 160 metre band in the USSR is as follows:

1.830	*to 1.860 MHz*	*— CW*
1.860+	*to 1.900 MHz*	*— CW, & SSB (LSB)*
1.900+	*to 1.930 MHz*	*— CW, & LSB & AM*

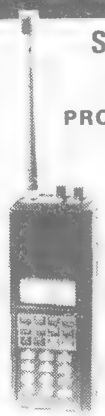
As before the band is allocated to the Amateur Service on a secondary basis.

Contributed by David Rankin 9V1RH/VK3QV

SHOOT YOUR SIGNAL OUT OF THIS WORLD

SCAN THE BANDS WITH OUR NEW SX-155

PROGRAMMABLE POCKET SCANNER



This new unique scanner provides coverage of 26-32, 68-88, 138-176 and 380-514 MHz with a sensitivity of less than 0.5 uV. Four banks of 40 memory channels, total of 160 memories. High scan speed of 16 CH/SEC. Auto search and store mode. Priority channel. 4 hour life on supplied Nicad batteries. 24 Hour clock. Selectable Scan/Search delay of 0.1 or 2 seconds. Includes Nicads, charger, carrying-case & antenna.

ONLY $449

AR-2001 CONTINUOUS COVERAGE 25-550 MHz SCANNER

If you want continuous coverage, AM/FM wide & narrow with 20 memories we suggest you choose the AR-2001 from GFS

$619 +$14 P&P

LOW LOSS FOAM DOUBLE SHIELDED COAXIAL CABLE

LOSS IN DB/30 METRES

TYPE	100 MHz	200 MHz	400 MHz	900 MHz
5D-FB	1.86	2.70	3.90	6.00
8D-FB	1.20	1.74	2.58	3.90
10D-FB	0.99	1.44	2.10	3.30
12D-FB	0.84	1.23	1.80	2.79
RG-8/U	1.95	N/A	N/A	7.44
RG-213	1.74	N/A	N/A	7.20

FB SERIES CABLE & N CONNECTORS

CABLE		N-CONNECTORS	
5D-FB	$2.60 m	NP-5DFB	$10.90
3D-FB	$3.80 m	NP-8DFB	$11.30
10D-FB	$5.80 m	NP-10DFB	$11.60
12D-FB	$7.90 m	NP-12DFB	$12.50

BUMPER HOOK MOBILE MOUNT

HS-FB is a heavy duty antenna mount designed to fit on your car's tow hook or tow bar.

$49 + $8 P&P

NO HOLE MOUNT

$11 + $6 P&P

The HS-25 is a "No Hole" boot lip mobile antenna mount designed for Scalar type bases.

Our fully equipped service department services a range of communications equipment. Hourly rate $37.

WITH COMMUNICATIONS ACCESSORIES FROM GFS

RTTY/SITOR & FAX FOR TRS-80C

DCM is a receive only program for the TRS-80C on CW-BAUDOT-SITOR.

RBA provides transceive on RTTY (BAUDOT) – ASCII.

(Note: A modem such as the MDK-17 or MFJ-1224 is required with these programe.

DCM $75 + $5 p&p
RBA $55 + $5 p&p

FAX is a high resolution weather facsimile programe for displaying weather maps etc, received on shortwave. It does not need a modem.

Morse $55 + $5 p&p
FAX $75 + $5 p&p

MORSE is a unique program for sending & receiving Morse code. 1-99WPM

ANTENNA MATCHER FOR CONTINUOUS HF COVERAGE – MFJ-941D

Apart from being extremely versatile the MFJ-941B includes a 6-position coax-switch, SWR power meter, 4:1 Balun and will feed balanced line, single wire and coaxfeed antennas.

$334 + $14 P&P

2 KW DUMMY LOAD

MFJ-250 Low SWR to 400 MHz, 2 KW PEP, supplied with transformer oil.

$89 + $14 P & P

EXPANDED RANGE OF HF-VHF-UHF ANTENNAS

BROADBAND ANTENNAS

LOG SP – 65 to 520 MHz
$177 + $14 p&p
LOG-S 100 to 520 MHz
$125 + $14 p&p

HF BROADBAND DIPOLES

New T2-FD series provides continuous HF coverage

200 WATT MODELS

3.5-30-T2-FD-200 is 25m long, 3.5-30 MHz.
1.8-30-T2-FD-200 is 30m long. 1.8-30 MHz. **both priced at $149 + $14 p&p.**

2KW MODELS

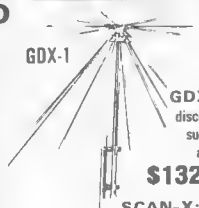
3.5-30-T2-FD-2KW is 40m long, 3.5-30 MHz.
1.8-30-T2-FD-2KW is 50m long. 1.8-30 MHz. **both priced at $189 + $14 p&p**

RF NOISE BRIDGE WITH BUILT-IN EXPANDER

MFJ-202B

These individually calibrated noise bridges read both inductive & capacitive reactance over a much wider range than the others. Simple to use and covers 1 to 100 MHz **$193 + $14 P&P**

BROADBAND OMNIDIRECTIONAL ANTENNAS FOR SCANNERS



GDX-1: 16 element discone 80-480 MHz suits transmitters and receivers.

$132 + $14 p&p

SCAN-X: 6 element discone for receive applications 65-520 MHz

$84 + $14 p&p

2 metre RINGO

The antenna for 2 mx FM work. 9dBi gain, omnidirectional

$94 + $14 P&P

GIVE YOUR RINGO ANOTHER 1.5dB

with our RK-1 decoupling radial kit.

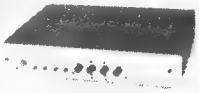
$23 + P&P

FOR THE RTTY OPERATOR

MDK-17 (KIT) MOD-DEMOD

A high performance RTTY/CW modem kit for use on a computer or teletype. Offers high noise immunity on receive. **$129 + $6 p&p (kit) or $199 $8 p&p, (assembled).**

MFJ-1224



Versatile RTTY/CW modem. Interfaces with a computer and is supplied with software for VIC-20 or Commodore-64. **$345 + $14 p&p**

Great Circle Map

Now point your beam in the correct direction using this Great circle Map! centred on Melbourne **$2** + $3 P&P

What is stronger than wire of equivalent cross section, non corrosive, non conductive, and has virtually no elongation?

NEW DEBEGLASS WIRE

Now, guy your tower without having to break the wires with dozens of egg insulators, or worrying about them corroding away due to a salty atmosphere. Our Debeglass wire alternative is made using continuous filament fibreglass yarn, jacketed in UV stabilized vinyl chloride. Compare the figures below.

	DB-4 (4mm)			DB-5 (5mm)		
	Core diam (mm)	Wt of 200mm (gm)	Tensile Str (kg)	Core diam (mm)	Wt of 200mm (gm)	Tensile Str (kg)
Deteglass	2.[illegible]	3.9	430	3.0	6.1	[illegible]
Steel wire	2.5	5.6	370	[illegible]	9.1	[illegible]

DB-4 (4mm) $0.51m DB-5 (5mm) $0.71m
We also have DB-6 (6mm) available on special order.

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EQUIPMENT REVIEW

TEST REPORT ON AN ELECTRONIC VOLTAGE REDUCER

Ron Cook VK3AFW
TECHNICAL EDITOR

TABLE 2
Output Voltage Versus Output Current. (Vin = 24 V)

Iout	Vout
0.0	14.11
3.0	14.10
6.0	11.7

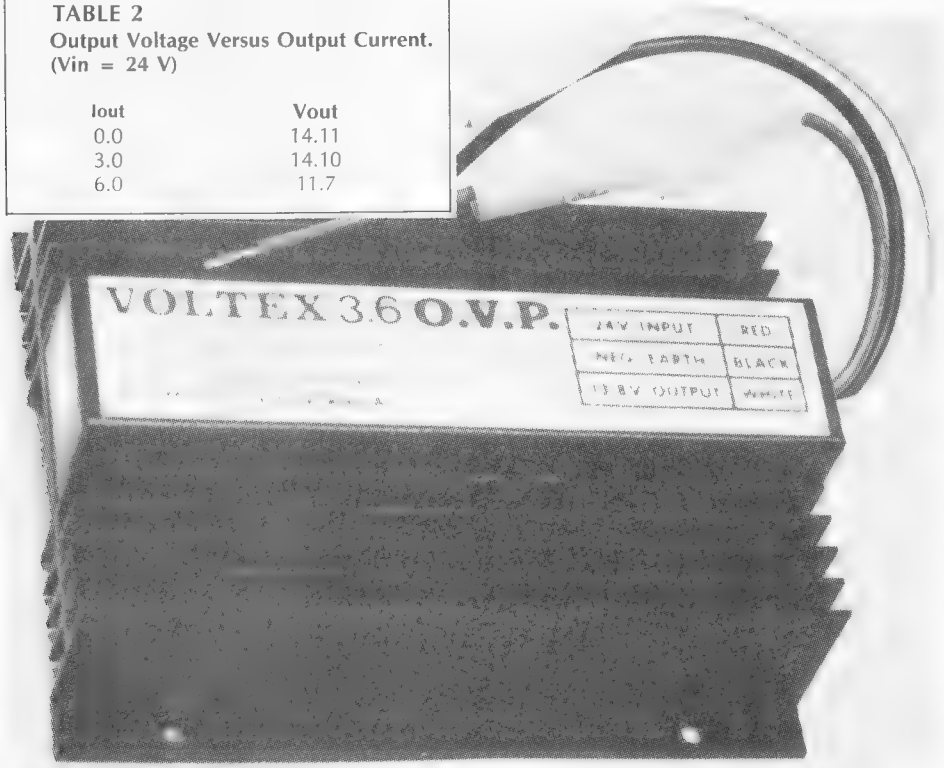


TABLE 1
Output Voltage versus input Voltage. (load current = 3 A)

Vin (V)	Vout (V)
18.21	13.95
20.00	14.00
22.00	14.00
24.00	14.00
26.00	14.00
28.00	14.00
30.00	14.00

WHAT IS IT AND WHAT DOES IT DO?

If you have ever contemplated operating from a primary power source, such as a windmill, you will have encountered the problem of achieving a stable 12 volt (nominal) supply. A similar problem will confront you if you operate a truck with a 24 volt system and you want to run a radio transceiver or tow a trailer with 12 volt lights. *What do you do?* Well, you could use a series dropping resistor but this would only be satisfactory for a fixed lamp load. Putting on the brakes would dim all the trailer lights! And if you tried to use your transceiver rig your signal would probably be unintelligible because of the poor regulation. To solve such problems you would buy an electronic voltage reducer. Most readers will be more familiar with the term voltage regulator an electronic voltage reducer is really a regulator designed for voltage reduction first and regulation second.

The VOLTEX 3.6 O.V.P. is an electronic voltage reducer designed for use with any **DC** supply in the range 20-30V. It is rated at 3 amps (continuous) at 13.8 volts output. It has a peak output rating of 6 amps. It is one of a family of reducers manufactured by Atron Products in Ballarat. Ballarat has a reputation for excellence in engineering (stationary engines, mining machinery, etc) and has produced many fine electronic engineers; are we seeing the beginning of a new centre of excellence?

As can be seen from the photograph, the reducer is built on a 12.5cm long heatsink. It is provided with an inlet lead, an outlet lead and a common (-Ve) lead. The input lead is fitted with a 5 amp in-line fuse.

The manufacturer provides an installation sheet with easy-to-follow instructions. A ventilated position protected from wet weather is recommended.

ON TEST

The reducer was connected to a regulated 10 amp supply and a bank of lamps used for the load. The 5 amp fuse was left in line.

The input voltage was varied over the rated range with the rated load. The results are given in Table 1. It can be seen that the output remains constant at 14.00 volts to better than 10 mV when the input drops to 20 volts or rises up to 30 volts. To get a 0.1 volt drop in output, the input had to be reduced to 17.55 volts. This is a performance in excess of what would be required in its intended service.

The input voltage was set to 24 volts and the load varied. The unit managed to achieve 6 amps out in spite of the 5 amp rating of the fuse, although the output voltage had fallen considerably.

The reducer was then run at 3 amps for one hour at the conclusion of which the output voltage had risen to 14.18 volts.

An attempt was then made to obtain 6 amps output but only 5 amps could be obtained on short circuit. The manufacturer states that this is normal as the unit is designed to be safe against thermal run-away, thus as the unit becomes hot the maximum output current is reduced. In normal commercial use a transceiver would be limited to one minute transmissions and hence the test performed was very severe. If higher currents are required at higher duty cycles, then one of the other model Voltex reducers should be used. Models up to 20 amps continuous rating are available.

The heat sink becomes quite hot after 15 minutes or so of continuous operation so the unit should be mounted in a well ventilated area if it is intended to use the unit at full rating.

INSIDE THE VOLTEX

The cover was rivetted on so no attempt was made to remove it. No manual was supplied so it is not possible to give an accurate circuit description. It appears that the reducer is a series pass regulator employing two 3055 type transistors as the series element. This would give an adequate capability and the limiting factors would be the main regulator and the heatsink as the transistors would each be capable of carrying the load current.

The Installation Instructions also include a specification statement. This states that the output is factory set to 13.6 volts and that the units will current limit in the event of overload. Voltage spike and surge protection is incorporated as is an over voltage protection. If the output voltage rises to 16 volts, the unit will shut down by blowing the fuse fitted in the input line.

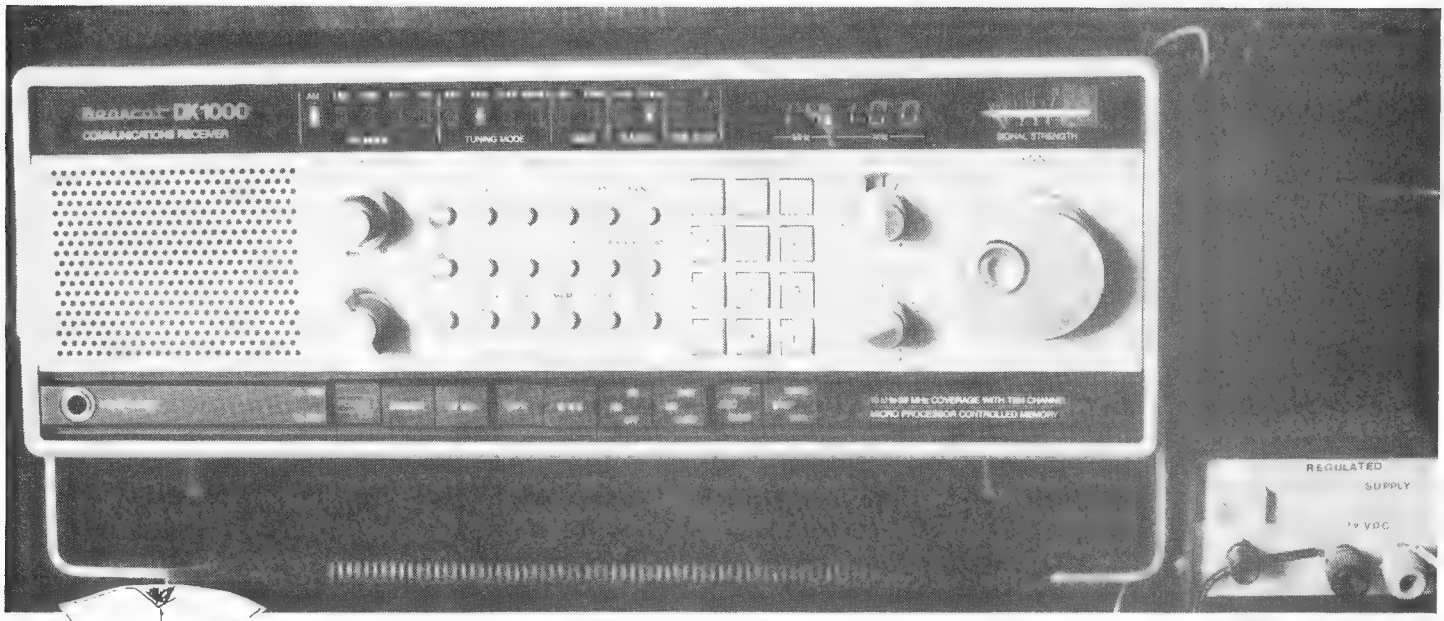
CONCLUSIONS

The Voltex 3.6 O.V.P. would enable operation of 25 watts and lower power level transceivers from 24 volt vehicles or from any DC source between 20 and 30 volts. It should provide a considerable degree of isolation from ripple and alternator whine, providing proper earthing is employed. Indeed lamps and any 12 volt appliance could be safely run from 24 volt sources providing the 3 amp average rating is not exceeded.

If you own a vehicle with a 24 volt system or use a 'home lighting plant' with a windmill charging system, then you need a Voltex.

Thanks to WECAM for supplying our review unit. All enquiries should be direct to them at 11 Malmesbury Street, Wendouree, Vic. 3355.

AR



EQUIPMENT REVIEW

Ron Fisher VK3OM
3 Fairview Avenue, Glen Waverley, Vic. 3150

BEARCAT DX-1000 DIRECT ACCESS COMMUNICATIONS RECEIVER

Until the introduction of the DX-1000 receiver, the Bearcat brand had been associated with VHF-UHF scanning receivers. Bearcat equipment is manufactured in Japan for the Electra Company, a division of Masco Corporation of Indiana USA.

The DX-1000 is imported into Australia and distributed by Dick Smith Electronics, who kindly supplied our review receiver.

This unit is a full featured, desk top, communication receiver. It measures 370W x 130H x 240D mm and weighs 6.5kg. The receiver requires a power source of 12 volts DC, either from an external power supply or from internal batteries. With the batteries installed, the total weight increases to 8kg.

Coverage is from 10kHz to 30MHz, with either continuous tuning or key board entry. The receiver has ten frequency and mode memories and two 24 hour clocks. It is supplied with a telescopic antenna, so that with the internal batteries installed it becomes a completely portable receiver. Frequency and time readout is by a five digit, red LED display plus an imposing array of 15 LED status indicators. All mode reception includes AM, USB, LSB, CW and FM, for which three selectivity positions of 2.7, 6 and 12kHz are provided.

A dual speed noise blanker, which is claimed to be effective against the Woodpecker, fast and slow AGC selection and two speed tuning round out the impressive list of features.

With all of that, you might well ask what DOESN'T the DX-1000 have. Incredible as it might seem, the DX-1000 does not have an AC power supply. At a price of $699, the power supply is an optional extra. It seems that when the receiver is sold in the USA, a wall type power pack is included as a standard feature, but the Australian purchaser is not quite so lucky.

DX-1000 IN OPERATION

The first requirement is to find a suitable AC power supply. The rated current drain is 450mA peaking to 700mA at full audio output. At this rate, the 8 internal D cells would not last too long. I happened to have a home-built, 1A, 12V regulated supply, which did the job very well. In addition three AA cells are required for memory retention when the external power supply is removed. With a total of 39 push buttons and six rotary controls, the DX-1000 takes a bit of getting used to. Many of the controls interact in some strange and unexpected ways. On initial switch-on, the receiver starts on 10kHz in the (KEY) mode. This means that you can now enter any required frequency via the key pad to the nearest 1kHz. At the same time, these can be entered into memory if required at this time.

To manually tune the receiver it is necessary to push the 'MANUAL' button, the 'DIAL' LED will light and the tuning knob becomes operative. Two tuning rates are selectable, 100Hz which gives a rate of 2.5kHz per tuning revolution or 1kHz, which gives 25kHz per knob revolution. It is at this point that some of the unexpected funnies become evident. Tuning across a SSB signal, for instance, steps in 100Hz increments, but every so often, the tuning goes backwards for an instant. However, let us say you now have your SSB signal tuned and you decide to check the time. Push the 'CLOCK' button and, low and behold, the SSB signal disappears off frequency. To retrieve the lost signal it is necessary to step through the two clock modes, back to the frequency readout, hit the 'MANUAL' button and retune. The problem appears to be that, on selection of the clock mode, the tuning system returns to the 'KEY' mode and so resets the tuning to the nearest 1kHz point. A strange idea, to say the least.

The two tuning rates are well chosen, however the synthesiser is rather clicky in operation and the digital display does not have a 100Hz digit. The tuning knob is a good size, but it does not spin. The knob seems to be made from a light grade of plastic, so perhaps the old trick of filling it with a mixture of shot and glue may help.

In addition to the keyboard frequency entry and the normal tuning, the DX-1000 also has a stepping facility. Steps of from 1kHz to 100kHz can be programmed so that it would, for instance, be possible to tune across a short wave broadcast band in 5kHz steps. However, you must keep your finger on the 'UP' or 'DOWN' button, there is no automatic scanning.

One interesting feature is the ability of the clock to switch the receiver on, a tape recorder on and select a memorised frequency on five separate occasions. Very handy to check the twenty metre beacon frequency at three in the morning.

The DX-1000 has provision for different antennas. A 1.2 metre long telescopic whip is supplied and can be attached to the rear, via the HI-Z terminal. A low Z (50 ohm) antenna can be connected via an SO-239 connector or a screw terminal. A rear switch selects either the HI or LO impedance connections. Results with the telescopic antenna were not good. Compared with a small, all wave receiver I keep for travelling, the DX-1000 was well behind.

A squelch control is provided for use with all modes. I have yet to find a satisfactory squelch system for a HF receiver and this one is no better or worse than the others. You might find it useful. Construction of the DX-1000 is fairly basic. Most of the components are mounted on one large circuit board with a separate assembly for the receiver front end. The cabinet is of steel with a black crackle paint finish, while the plastic front panel is backed with a metal shielding panel.

The large carry handle, which is very reminiscent of the one used on the Kenwood R-1000 receiver, allows the set to be tilted up at any re-

quired angle, a very useful feature.

In general, the DX-1000 is a fairly pleasant receiver to operate and once the complexities of the control panel have been mastered, it is capable of turning in good results.

THE DC-1000 ON TEST

The following equipment was used to produce the test figures: a Marconi TF995/5 signal generator, AWA F242A noise and distortion meter, Daven terminating audio power meter and a Heath AV-3 audio VTVM.

The extension speaker output was connected to the audio power meter and noise and distortion meter. An 8 ohm load was selected. The residual noise output with the audio gain at zero was measured. This was -71dBm unweighted and -59dBm weighted. These are excellent figures and certainly indicate, at least that my home made power supply is clean.

Audio power output and distortion was:

OUTPUT POWER	DISTORTION
.5 watt	1.4%
1.0 watt	2.2%
1.5 watts	13.0%
2.0 watts	32.0%

Clearly, something is wrong here, so the load impedance was changed to 4 ohms with the following results.

OUTPUT POWER	DISTORTION
.5 watt	1.6%
1.0 watt	1.7%
1.5 watts	1.8%
2.0 watts	8.0%

This now meets the specification but at 4 ohms load, not at the specified 8 ohms.

Received audio response was checked in the LSB mode, 2.7kHz selectivity, by tuning the receiver across an external crystal calibrator.

100Hz	200Hz	300Hz	1kHz	3kHz	3.3kHz
-8	-4	-3	0	-6	-10dB

Next, the response was checked in the AM mode with 6kHz selectivity.

80Hz	100Hz	200Hz	300Hz	1kHz	2kHz
-15	-12	-5	-4	0	-1
3kHz	4kHz				
-4	-8				

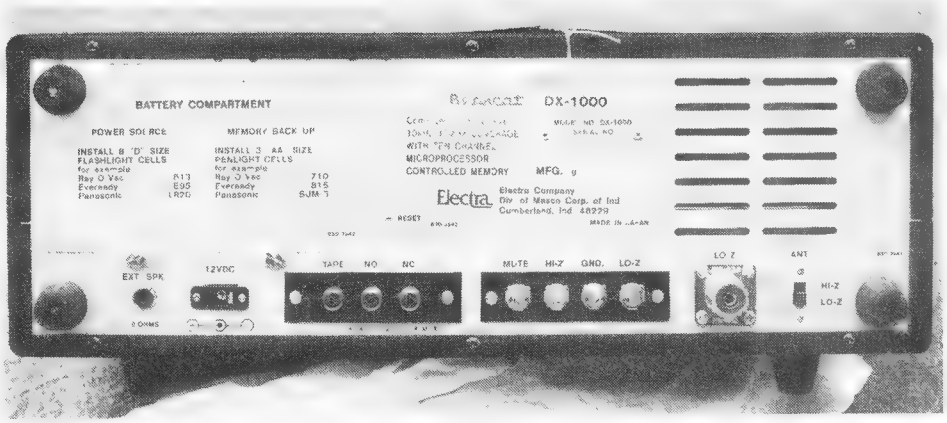
The above figures were taken with the tone control set to the centre position. The action of the tone control is such that, at one extreme it produces a top cut and at the other, a bass cut. It was noted that the 1kHz responce varied by 5dB from one end to the other and the 100Hz response by 25dB and the 2.5kHz response by 15dB. Sensitivity was checked at 14.100MHz USB with 2.700kHz selectivity. At 14.100MHz AM with 6kHz selectivity, the 1uV S⅓N ratio was 12dB which is a little better than the specified 10dB.

The S meter calibration was measured and found to be very miserly. It took 25uV to move the meter up to S2. The full calibration results are as follows:

S2'25uV, S4'50uV, S6'100uV, S8'125uV, S9'160uV, 9+10'250uV, 9+20'500uV, 9+30uV'2.5mV and 9+40'10mV.

With the way 20 metres is these days, you will not see much action from the S meter.

The AGC action was also checked at 14.100MHz. The audio output level was monitored as the signal generator level was slowly increased. From .1uV to 1uV, the increase was 12dB. From 1uV to 10uV-15dB, from 10uV to 100uV-2dB and then no change from there



upwards.

The overall frequency stability of the DX-1000 is very good over a one hour period. The total drift in the SSB mode did not exceed 100Hz. This meets the specification.

Strong signal handling was checked subjectively and found to be quite fair from 2MHz to 30MHz. Below 2MHz it was poor. Using a long wire antenna for broadcast and long wave reception produced severe cross modulation. The use of the 20dB RF attenuator was needed most of the time and the 40dB position for the rest of the time.

Sensitivity of the low bands was not checked but appeared to be reasonable down to 150kHz, but poor from 150 to 10kHz. No signals were heard in this region, at all.

The receiver current drain was measured. No signal drain was 420mA. At 1 watt audio output: 600mA. Power switched off, but clock still indicating: 100mA. Power switched off, clock display off: 20mA.

It appears from this that the battery back up for the memory and clock is for short term backup only. In other words, the main DC power supply must be left switched on all the time and the batteries are for short term power failures only.

Lastly, the accuracy of the digital display was checked. On AM it was accurate to within the 1kHz resolution and on SSB to within +-/1.5kHz. The BFO offset is not taken into account with the display reading.

INSTRUCTION MANUAL

The 18 page instruction manual covers: Introduction, Technical Specifications, Preparation for Use, General Operating Instructions, Some Basic Information on Antennas, UTC and a World Time Chart the Morse Code and the Frequencies of some International Broadcast Stations.

The operating instructions are reasonably well written, but the new owner will need quite a bit of time to get used to the rather complicated operation. Technical information is very sparse. Apart from the specifications, there is no other information, nor even a circuit diagram.

The manual is also written on the assumption that an AC power supply is included, which of course it is not. Perhaps it is not asking too much for the local distributor to add some supplementary notes to help the Australian purchaser in this regard.

THE BEARCAT DX-1000 SUMMARY

Unfortunately, the DX-1000 falls short in many aspects of its design. Perhaps the designers have tried to provide too many facilities and have lost sight of good basic receiver performance.

Having said that, the DX-1000 does perform reasonably well for many applications, although it is up against many better receivers at an only slight increase in price. If you are considering the purchase of one, could I suggest that you try it and determine if it meets your requirements. But then, of course, this applies to any purchase. I look forward to seeing the DX-1001.

Our thanks to Dick Smith Electronics for the loan of our review receiver and all enquiries should be directed to them.

EVALUATION AND ON-AIR TEST OF THE BEARCAT DX-1000 RECEIVER.....Serial No 003746

APPEARANCE

Packaging
*** Colourful, strong carton with foam inserts.
Size
*** *Rather large, considering no inbuilt P/S.*
Weight
*** *Reasonable at 6.5kg.*
External Finish
*** *Very basic finish.*
Constructional Quality
*** *Reasonable quality circuit boards and construction.*

FRONT PANEL

Location of Controls
*** *Generally well laid out.*
Size of Controls
*** *Knobs OK, but mode selection buttons poor.*
Labelling
*** *Generally OK but mode selection buttons confusing.*
S Meter
*** *Not easy to read.*

RECEIVER OPERATION

VFO Knob Action
** Rather stiff - should spin.
Digital Readout
* To 1kHz only. Red LED display rather outmoded.
Receiver Stability
*** Quite OK for general use.
Memories
** Ten with required mode but, awkward to use.
S Meter
* Very sluggish.
AGC Performance
* See test section.
Sensitivity
** Quite OK for general use. See test section.
Signal Handling
** OK on short wave. Poor on medium and long wave.
Selectivity
** A bit broad.
RF Attenuator
** 20 and 40dB. Might be better with 10, 20 and 40dB.
Noise Blanker
** Not over effective.

QUALITY OF RECEIVED AUDIO

Internal Speaker
*** *Front mounted speaker. Reasonable quality.*
Headphone Output
* *Not compatible with stereo phones.*
Tone Control
*** *Gives a wide choice.*
Audio Output
*** *Plenty for most applications.*
Instruction Manual
*** *Operational instructions fairly good, but no technical information.*
Over-all-Rating
*** *At the price, it should be much better.*

RATING CODE...* Poor ** Satisfactory ***Very good **** Excellent

AR

Remembrance Day, 1985

Remembrance Day, and the Remembrance Day contest, are always special occasions in Australia, but this year they are even more special than usual, because 1985 marks the 75th anniversary of the Wireless Institute of Australia!

What a wonderful and noteworthy event! The WIA is the oldest amateur radio society in the world, and it has a marvellous record of leadership throughout the years. Your longevity and your 75-year record of achievement set a standard by which other amateur radio societies can measure themselves.

In 1979 amateur radio was especially successful at the World Administrative Radio Conference in Geneva. We were successful at that conference because of our excellent preparation for and our participation in the work of the conference. In those efforts, Australia was a leader and a significant factor in our success. Australian amateur radio leaders played a dominant role in the preparation, which extended over a period of several years. Australian Radio amateurs played a leading role in the deliberations of the conference itself, and were influential in many of the important decisions of the conference.

We look to continued leadership by Australia especially in amateur radio affairs but also in the overall conduct of telecommunications in its many facets.

The International Amateur Radio Union has recently been restructured in order that it can better meet the challenges of the future, and the Wireless Institute of Australia played an important part in the restructuring process. Those of us most intimately involved in the work of the IARU are indeed grateful for the support of and the participation by the WIA.

Amateur radio has demonstrated that it is a radio service which deserves the support of administrations at and between international telecommunications conferences. We of IARU intend to concentrate on making sure that all administrations recognise the value of the amateur radio service and that at the next General World Administrative Radio Conference we are once again successful.

With your help, my Australian friends, we shall succeed.

Richard L. Baldwin W1RU
President, IARU
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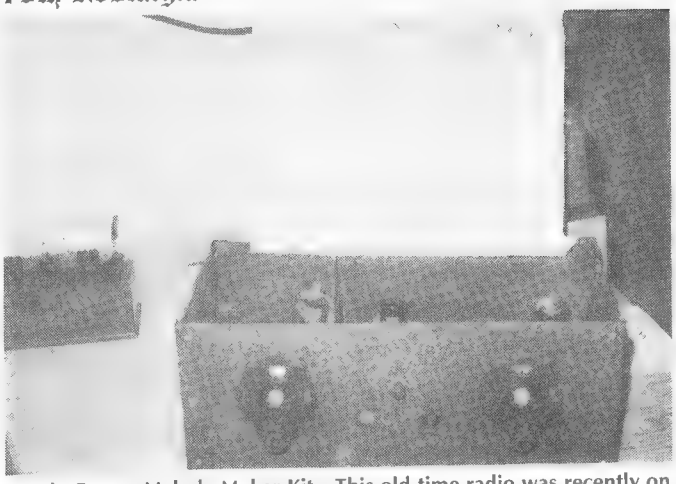
75th Nostalgia



Morrie Cossor Melody Maker Kit...This old time radio was recently on display at the 1985 Oxley Radio Club Field Day. Part of the sign with the unit states 'This radio was purchased from Anthony Hordens (Sydney) as a kit in 1931 and assembled by Dan Willett. Cost - Radio Kit three pounds five shillings. Stations heard: Night time 4BC, 2BL,2FC, and in Day time 2NR Grafton

This was the second radio at (downtown Brierfield), the first radio on the river (South arm of the Bellinger) was an AWA Radiola 5 valve owned by the Spillett family, about 1930. People would crowd around the speaker to hear the cricket by Alan McGilvray from England, via Sydney'.

Photos by Pete Alexander VK2PA

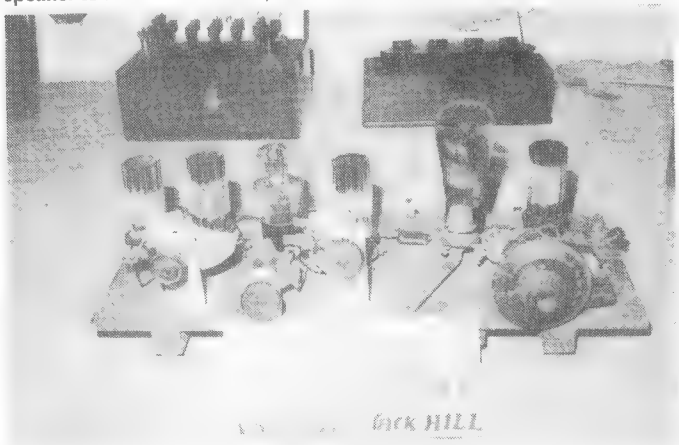


Photo right:
This transmitter was also on display at the Oxley Field Day. Jack Hill VK2ADT, who constructed the transmitter, is still very active on the bands. It used a valve type 42 oscillator and a type 46 amplifier with an output of 10 watts on CW.

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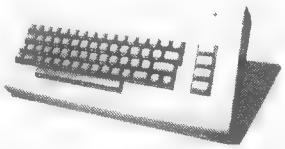
Commodore 64



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The INTERFACE:

RTTY Decoder — $39.95
Low cost kit for reception of RTTY, CW, etc. Easy to construct decoder plugs between your rig and computer for all receive modes.

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This comprises a Printed Circuit Board and complete instructions to build a complete interface for reception and transmission.

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RTTY/CW/SSTV 64 — $79.95
This plug-in cartridge for the Commodore 64 features split screen and expanded screen modes for reception and transmission of CW, RTTY (ASCII & BAUDOT) and SSTV transmission. Extremely versatile with over 40 operating commands. (New revised version.)

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HIGH TECHNOLOGY

AR85

Special 75th Anniversary

VK2 MINI BULLETIN

Photograph courtesy the Museum PR Department

Official opening of the Power House Museum Amateur Radio Station, VK2BQK. Rear-Peter Root, Acting Director of the Power House Museum, centre Pierce Healy VK2APQ, Station Custodian, front, Alan Jones, Broadcaster and Sportsman.

VK2BQK

Pierce Healy VK2APQ
69 Taylor Street, Bankstown, NSW 2200

AMATEUR RADIO — PUBLIC DEMONSTRATIONS

VK2BQK was first established in 1979 on the first floor of the old Museum of Applied Arts and Sciences, at Harris and Mary Ann Street, Ultimo in Sydney. A modest station housed behind sliding glass panels, it shared a display alcove with a reconstructed 1924 amateur station and feature panels on the past to present communication themes. VK2BQK provided many museum visitors with their first insight of working amateur radio, and was a very popular display. When the decision to develop the new Power House Museum and close the original building was made, the popularity of the amateur radio exhibit placed it high on the priority for the new displays. The station has been constructed so that it can be transferred from State one to the stage of the Power House Museum, where it is planned to be a major exhibit, together with a tower and beam system outside, which will become a land mark.

Tim Mills VK2ZTM

The Power House Museum Amateur Radio Station VK2BQK was officially opened on 14th May 1985 by Mr Alan Jones well known Sydney broadcaster and sportsman. The function was attended by representatives of the Department of Communications, Electronic media, Radio equipment distributors, Museum staff and associates, and a number of Sydney amateurs and friends. The station was also featured in a live morning telecast and a recorded interview news feature on channel TEN television. Publicity was also given in Sydney and suburban newspapers.

The completely rebuilt station has been established as a major communications exhibit for the Power House Museum Stage Two due to be opened in 1988 to where it will be re-located. At present it is located in Stage One, Mary Ann Street, Ultimo, just off Broadway, Railway Square, Sydney.

The geometrical styled externally mirror clad shell enclosing a panelled console was designed and built by the Museum staff. All the equipment is panel mounted giving a functional, attractive and colourful appearance.

The operating position at the console is surmounted by a large backlit coloured world map flanked by a large screen monitor and a great circle map which, in conjunction with the beam rotator controller, indicates the part of the world to which the beam is pointing. Also above are clocks showing time in Sydney, Bombay, London and Vancouver, plus two speakers for higher levels of audio output.

Set in the mid section are five speakers, operators time clocks, the audio and unit switching panel and antenna switching panel. The audio and unit switch panel allows speakers to be switched to each of the high frequency transceivers, an all band receiver and the cassette recorder. Also reception of radioteletype and Morse code signals from an all band receiver, high frequency, very high and ultra high frequency transceivers may be switched for decoding through the 7000E communication computer. Likewise, FSK and AFSK or Morse code output from the Tono may be switched to the HF, VHF and UHF transceivers.

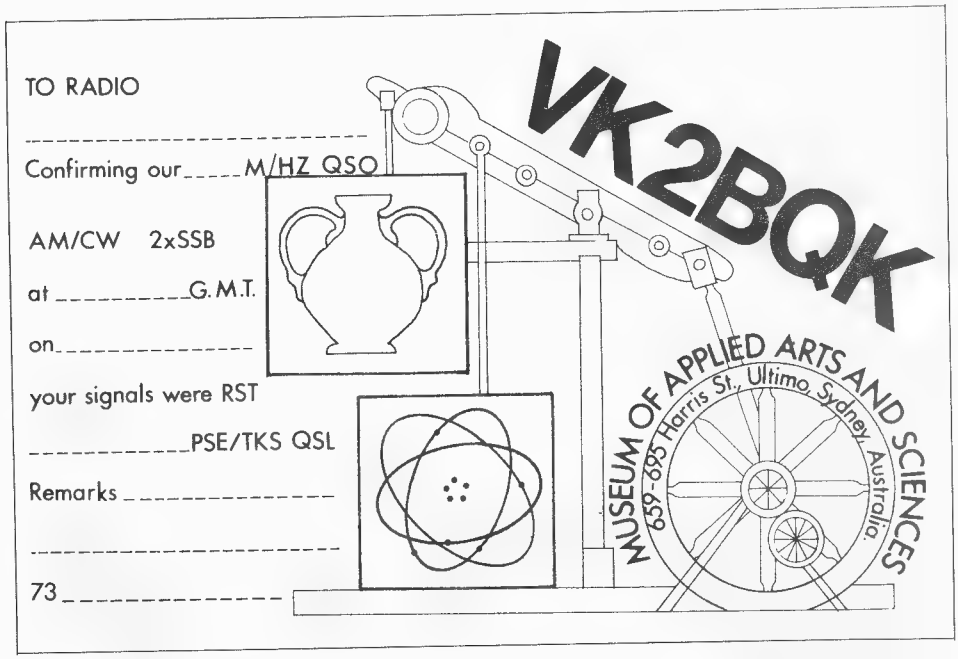
The antenna switch panel is the distribution point for the antenna system located in the forecourt area of the Museum and allows switching of HF antennas to HF receivers and transceivers, also vertical and horizontal antennas to VHF and UHF transceivers. It also allows the 3.5MHz dipole to be available for the all band receivers except when required for the HF transceivers, or, isolating the HF transceivers if the other HF antennas are required for the all band receivers.

The 7000E communication computer set into the desk top is linked to the video monitors and the Alpha 80 dot matrix printer mounted on a mobile pedestal which houses the paper bale.

Provision is provided for the use of a Morse key or the keyboard for CW operation.

Storage drawers and cupboard are located under the desk top as is the master keyed power switch.

The lower backward sloping panels house the all band receivers, cassette tape recorder, V-212 CRO, operators video monitor, SWR/Power meter, antenna tuning unit, beam rotator controller, TS 93X, FT 101E and FT 7 HF transceivers, TR 9500 UHF and TR 9130 VHF transceivers, Function Generator and EA Large Screen Storage CRO. Separate microphones are provided for each transceiver.



Modulation patterns from the CRO and wave form patterns from the function generator can be displayed on the video monitors through the Large Screen Storage CRO.

Two comfortable adjustable swivel chairs are provided for the operators.

A five sectioned transparent panelled surround protects the console from direct access by visitors to the station. Adequate security surveillance is maintained at all times.

The antenna system located in the forecourt of the Museum is a 15 metre high, two section triangular telescopic tower with a special section on top to house the rotator and shaft support. The guy wires are anchored to 3.5 metre high steel pillars. On the rotating shaft are mounted a HB34D four element tri-band beam for 14, 21 and 28MHz. A LOG-SP thirteen element log periodic horizontally polarised for VHF and UHF, with a 2 metre cross arm at the top carrying vertical co-linear ground planes for 144MHz and 432MHz.

In addition to the work of the several specialist trades staff of the Museum, amateurs interested in the project carried out various aspects of the work involved. The station custodian is Pierce Healy VK2APQ, who collaborating with Museum administrative officers, their staff and amateurs, co-ordinated the installation of equipment and brought the station into operation. All work by amateurs has been carried out on a volunteer basis.

For the 3.5 and 7MHz bands insulators have been inserted in the guy wires which are used as inverted "V" antennas. Baluns are used at apex feed point.

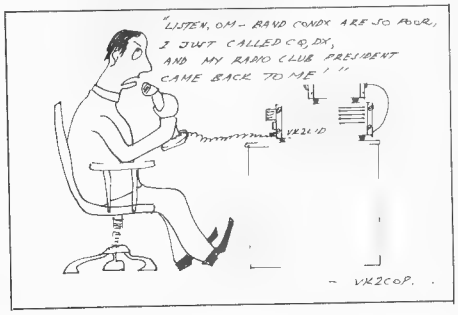
An operators guide has been compiled detailing switching procedures, extracts from manuals for each piece of equipment and other appropiate information.

In addition to equipment purchased by the Museum the following organisations have generously made equipment available: Dick Smith Electronics; Trio Kenwood Australia; GEC Electronics: Electronics Australia; Emtronics.

Future plans are to incorporate — Colour ATV, Slow Scan TV, Facsimile, and Amateur Satellite Communication.

Prior to the official opening the station had limited public exposure. There were several demonstrations to High School and College groups, participation by Scouts in the 1984 Jamboree-on-the-Air and later over the Easter 1985 holiday period.

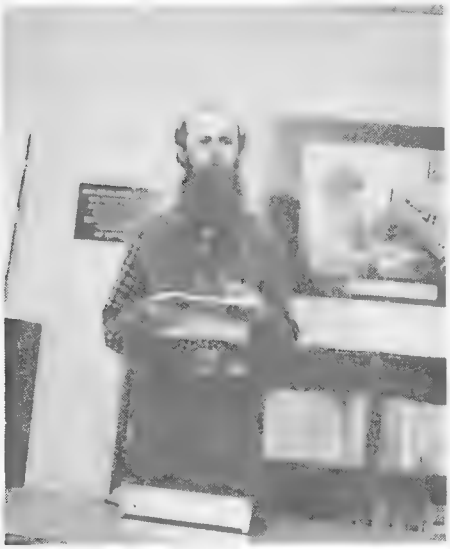
The station is now manned each weekend by volunteer amateur operators and is proving to be a very popular attraction to visitors. Demonstrations are also given to groups during week days when requested. **AR**



1985 VK2 SEMINAR.

Peter VK2PJ, VK2 President welcomes all to the 1985 VK2 Seminar.

The seminar was held on Saturday the 20th July at Amateur Radio House. It was during a period of influenza in Sydney, which resulted in a smaller attendance than last year. Those who were able to attend had an enjoyable and informative day. Illness and personal reasons also prevented two of the lecturer's from attending and they will be held over to the next Seminar planned for early 1986.



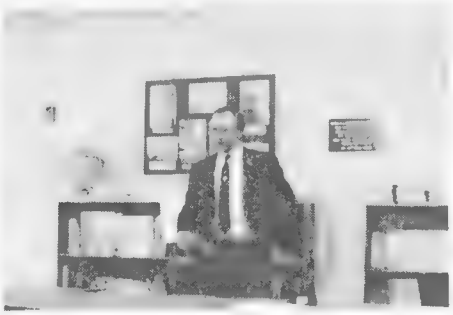
Les VK2KYJ (above) and Barry VK2AAB (below), presented talks on Packet Radio.

Photographs courtesy of Henry Lundell VK2ZHE

The first lecture was a report on the developments in Packet Radio since the last seminar, when Jim VK2BVD presented his talk. The updated report was presented by Les Grant VK2KYJ from the Sydney Amateur Digital Communications Group and Barry White VK2AAB from the TARP Users Group.

Jeff VK2BYY spoke on Doppler DFing.

The next lecture was given by Jeff Pages VK2BYY on Doppler DF'ing. This talk was illustrated with diagrams and a working model.



David VK3ADW, Federal President, discussed the history of radio and the WIA with the gathering.

Following the lunch break Federal President, David Wardlaw VK3ADW, discussed the history and development of amateur radio and the Wireless Institute of Australia.

A presentation was made to Peter Stuart VK2BEU who was the winner of the VK2 Divisions 1984 Home Brew Contest.

The final speaker was John Milton, State Manager of the Department of Communications, who discussed the operation of the Radio Frequency Management Division, with particular reference to the amateur service.

A lively question and answer session followed each talk. The proceedings were recorded on video tape and are available through the Division's video tape library. Copies will also be available from the Federal video library.

AR

DOPPLER DF ing

Peter VK2BEU, right, was the winner of the 1984 Home Brew Contest.

John Milton, State Manager of DOC.

David VK3ADW and Tim VK2ZTM relax after the Seminar.

SOME OF THE VOICES BEHIND

Peter VK2BPN, Announcer.

Bob VK2YVO, VK2WI Announcer.

Jeff VK2BYY at the Announcer's Console.

Peter VK2PJ, Announcer.

Tim VK2ZTM, Announcer.

Brad VK2YEW/NEO, Announcer.

David VK2ZMZ, VK2 WICEN Co-ordinator and News Contributor to VK2WI.

Transmitters and Power Supplies at Dural.

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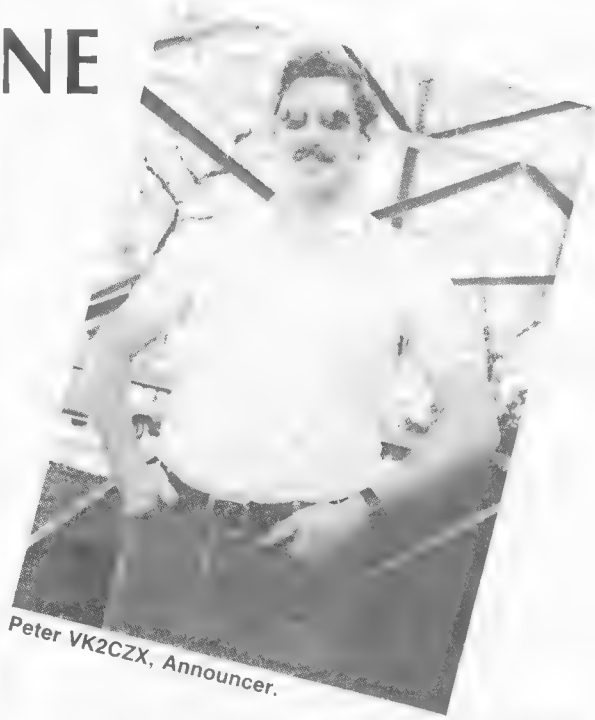
FURTH
May 1982

D THE VK2WI MICROPHONE

Photographs courtesy VK2KCP

Dave VK2KFU, Announcer.



Peter VK2CZX, Announcer.

Stan VK2KSD, Announcer.

Jeff VK2BYY, Officer in Charge.

Steve VK2PS, Announcer.

Les VK2KCP, Announcer.

Twice each Sunday, at least two amateurs make a journey VK2WI to read and engineer the Divisional weekly broadst. The first session is in the morning at 11am and the ogramme is repeated in the evening at 7.30pm.

VK2WI transmits on 160, 80, 40 and 10 metres in the HF specum and on 6, 2 and 70cm in the VHF/UHF spectrum. It prodes a direct relay to 2 metre repeaters in Newcastle, Central oast, Western Blue Mountains and Wollongong.

Each month, on the first Sunday, a barbeque is held at Dural er the broadcast and an invitation is extended to all to atnd. Last June, several of the announcers and engineers attend- and were persuaded to appear before the camera. It is hoped capture the remaining team and present their likeness in a ture issue.

Any members who would like to assist in either an announcg or engineering capacity is invited to notify Jeff BK2BYY or ntact the Divisional Office.

FURTHER READING: A full story of Dural appeared in Amateur Radio, page 28, y 1982.

EIGHTY METRE OUTLET ADDED TO VK2RCW

Tim Mills VK2ZTM
STATE REPEATER CO-ORDINATOR
PO Box 1066, Parramatta, NSW. 2150

Photograph courtesy VK2KCP

Barry VK2AAB, the developer of the VK2RCW Morse machine.

VK2RCW is the Sydney based, continuous Morse transmission on the two metre band. Often wrongly assumed to be a beacon, because of its call sign, that is not its prime purpose.

It consists of a transmitter fed from a memory store with about an hour of text. The text is changed at intervals, by typing the new text into a personal computer, transferring it to tape, taking the tape to the VK2RCW site and loading it into the memory. A wide selection of text is used and can include foreign languages. Sometimes, the text is sent backwards or similar, to prevent the listener from journalising.

VK2RCW has three transmission speeds. There are about 5, 8 and 12WPM. It transmits for approximately five minutes and looks for a full stop in the text. When one is found, it stops the programme and sends station identification at 20WPM. After four periods of identification, it increases its sending speed to the next range. After a further four periods, it goes to the highest speed and at the end of that block, it reverts back to its slow speed.

As the cycle period and the store capacity have different time intervals, the whole text ends up over a period of a few days, being sent at all speed ranges. With its 24 hour operation, it has enabled listeners in Sydney, access to Morse practice whenever they like.

VK2RCW has been operational from late 1976 on 147.400MHz using (mostly) a MR3 carphone, 5 watts, into a five-eighth whip on the top of the tin roof of its host building, on the upper North Shore in Sydney. It has a good view of the city and southern and south western suburbs. It is now in the process of a frequency change to 144.950MHz, (one of the band plan frequencies for such systems), and a power increase to about 25 watts. The antenna has been replaced, affording some further gain.

The old channel 147.400 (7400) will then become available for use with the proposed Newcastle, Sydney and Canberra ATV repeaters.

For some time it was felt that the service should be expanded to enable more listeners (future amateurs) access to its facilities. It was considered that an outlet on HF would provide this, but where? The higher frequencies, eg 10 metres, have limited groundwave local coverage and then skips into the DX world. This narrowed the choice to either 160 or 80 metres. It was felt that less newcomers to the hobby of amateur radio would have 160 metre access, so the choice became 80 metres. Since 80 is a popular and crowded band, the choice of frequency became important. It appeared that the top end of the Australian allocation offered the best choice and the frequency of 3.699 MHz was suggested.

About two years ago the application was submitted. Since then, there has been considerable debate and investigation about an 80 metre outlet for VK2RCW. It has bee decided that it should operate for a trial period and the Department of Communications has granted a permit for it to operate for six months, until early 1986 when it will be reviewed. The VK2RCW system is intended only to supplement the various existing sources of Morse practice sessions.

VK2RCW went to air on Thursday 18th July, on 3.699MHz, using a crystal locked FT7 with 15 watts into a simple long wire antenna. While indicated earlier, it is not intended to be a beacon, its continuous CW operation on 80 metres will show some of the propagation characteristics of this band, with Australian, New Zealand and Pacific coverage.

It is planned later to change the antenna and the transmitter.

During this trial period, listener reaction is sought as to whether it is providing them with any benefit. VK2RCW is sponsored by the Hornsby and District Amateur Radio Club, PO Box 362, Hornsby, NSW. 2077. It is under the development, care and control of Barry White VK2AAB. You are all invited to have a listen to the transmissions and sometime, would you then put your thoughts in writing and send them to HADARC.

It is not known if similar systems exist elsewhere in the world, but since VK2RCW is almost ten years old, I am sure it could have been a world first.

It is hoped that a technical article on VK2RCW will follow in the near future.

AR

JOTA 1985

John Bunn VK2NDJ
VK2 JOTA CO-ORDINATOR
PO Box 1066, Parramatta, NSW. 2150

To the date of writing, being the new JOTA Co-ordinator has enabled me to meet various people interested in this project. I wish to thank them and hope to continue in this theme.

As we all know by now, the plans for a JOTA station should be well beyond the planning stage. Namely, a positive venue, a positive contact or two in the scout/guide area, plus our own technical plans.

Mind you, I am quite sure that many good stations in the past have set-up and operated, after a very late kick-off.

As always, there are the lucky ones who have a regular amateur and scouts station each year.

Recently the OZ for Africa telethon was doing its inspired and wonderful fund raising effort. The Universal bond was an intangible thing . . Music . . beamed to all people by satellite. A similar bond of CW or words is easily accepted as normal by amateur operators. These words, sometimes only a few beating the QRM, are understood by our unseen friends.

Once yearly, with special co-operation with the scout/guide organisations, we again have a good opportunity to extend our contacts. The JOTA experience to one group is really a multi-contact as it goes to all young people interested and listening.

By helping them, we are eventually helping ourselves and the WIA, for future amateurs are made, not born.

Most communication will again, probably be regional, owing to present conditions. However, this is generally only a worry to the operator. Except for a possible extrovert in a group, the intelligibility of a contact is the most important factor. QRM is not easily accepted unless one is used to it.

The NSW scout/guide movement are very interested in improving the efficiency of their network and will, where possible, personally telephone or contact the operators. I am led to believe, they hope for many more radio stations than last year, when they could not get enough volunteer amateurs.

Should they ask you..try it..even if you haven't before.

If you have been waiting to be asked, don't waste anymore time. Phone your local scout/guide leader and ask if you are needed in that area. Second choice, although time is running short, phone me on (02) 772 3437, and I will check via the system and notify the NSW Scout Liaison Officer.

Wishing all old timers, full call, limited and novice operators good DX for JOTA '85.

AR

LAUNCHING OF THE VK2 TIME CAPSULE

As advised in the March issue of Amateur Radio, VK2 has opened a (Time Capsule), which will be closed in March, next year.

A small group of stalwart amateurs and their families attended the launch in March this year.

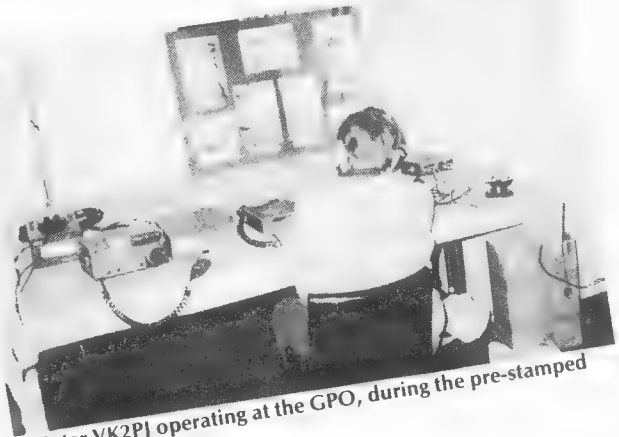
Launching the VK2 Division's Time Capsule at VK2WI on the 10th March 1985 are Jeff VK2BYY, Divisional Secretary and Tim VK2ZTM, Divisional President. Tim is behind the 75th Anniversary cake.

Jeff VK2BYY cutting the anniversary cake.

STAMP LAUNCH, 22ND MAY, IN SYDNEY

Photograph courtesy Australia Post

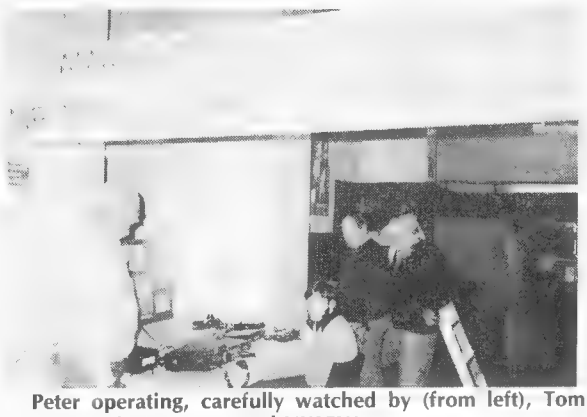
Everyone into the action . . . L to R: Peter VK2PJ, Tim VK2ZTM and Steve VK2PS.



Peter VK2PJ operating at the GPO, during the pre-stamped envelope launch.

The VK2 Division provided a small display at the GPO, in Martin Place for the launching of the WIA 75th Anniversary pre-stamped envelope, on 22nd May 1985.

Several clubs provided displays at their local post offices. It is hoped we may be able to include a report on their activities, when they submit copy to the Divisional Offices.



Peter operating, carefully watched by (from left), Tom VK2PDT, Tim VK2ZTM and VK2EW.

Photographs courtesy VK2ZHE and VK2KCP

HISTORY & DEVELOPMENT OF OSCAR 10

Pictorial look at the lecture given by Karl Meinzer DJ4ZC in Sydney in late May 1985. See also page 22 August AR

Tim VK2ZTM, Karin Meinzer, Peter VK2PJ and Karl DJ4ZC following the Lecture.

Karl DJ4ZC.

Peter VK2PJ presenting Karl DJ4ZC with a 75th pennant at Amateur Radio House.

VK2 MINI BULLETIN

Tim Mills VK2ZTM
VK2 MINI BULLETIN EDITOR
PO Box 1066, Parramatta, NSW 2150

It had been planned that this issue would be another special for the VK2 Division but the deadline came up too fast. Instead it will be a smaller input with further material in a later issue.

YOUR RD LOGS

I am sure that most VK2s would have a few entries during the weekend, but have you posted your log? The RD Trophy is in VK2 at the moment but we need your log to help keep it here. If you still have to post your log, please do so today.

HOME BREW CONTEST

Peter VK2BEU was the winner of the 1984 contest. Now is the time to be looking over your project collection and seeing if there is anything that you have under construction which you can enter. Application forms are available from the Divisional office during the normal hours of 11am to 2pm each weekday or 7 to 9pm each Wednesday night.

WICEN EXERCISES

Coming up in the near future is the Car Rally at Batemans Bay this month. The outward Bound Hawkesbury Canoe Classic is at the end of October and the Schofields Air Show in November. Further details will be on the weekly nets on VK2RWS 7.150 or 3.600 MHz. Note that there has been a time change to 8.30pm Thursday for this net.

CONFERENCE OF CLUBS

This will be hosted by Westlakes ARC on the first Sunday in November at Teralba. A reminder to clubs that agenda items close at the Divisional office early this month. If you have an item which, if passed, needs to be passed on to the 1986 Federal Convention, submit it now for consideration at the November C of C so that it has time for interstate circulation.

VK2 ANNIVERSARY DINNER

The date has been set for Saturday the 12th October. Planning has been difficult, as no indication of possible attendance can be gauged. As these notes were being prepared, the final details were still to be worked out, so most information will be given via the broadcasts. Bookings are to be made by contacting the Divisional office, before the 27th September.

TECHNICAL ARTICLES

Do you have a short article suitable for inclusion in Amateur Radio? If so, send it direct to the Editor.

DOC MEETING

In July, a meeting took place between representatives of the WIA and the Department of Communications in Sydney. Representing the WIA were Jeff Pages, Divisional Secretary, and Tim Mills, Repeater Co-ordinator. The Divisional President, Peter Jeremy, was unable to attend due to work commitments and tendered his apology. Also present was Bob VK2YRX.

The repeater abuse problem was discussed at length, and the Department advised that further investigations were underway. For obvious reasons, no further details can be given at this stage. Again the Department stressed that amateurs should not respond to, or acknowledge, the presence of offenders. The Department requested that anyone having information which may be of use in locating the offenders should forward it in writing via the Divisional Office rather than directly to the Department. Jeff Pages reported on the transmitter location system being developed at Sydney University as a long-term aid in dealing with this problem.

A suggestion that equipment seized by the Department be cross-checked against the WIA stolen equipment register was discussed, and both the Department and the Divisional Council are to look at ways of overcoming some of the administrative problems involved in implementing such a scheme.

The Department accepted an invitation from the Divisional Council to address the WIA seminar held on the 20th July.

A question arising out of the last Conference of Clubs, relating to interference to amateurs from commercial services was discussed. The Department advised that the term "protected service" applied to services operating from a fixed and accurately known location and related to efforts made to ensure freedom from intermodulation and harmonic interference from other nearby services. Because of the frequency agility and portability of an amateur station this type, of protection is impractical, however if the interfering service does not meet specifications then action will be taken regardless of whether the station being interfered with is protected or not. Before lodging a complaint, amateurs should ensure that the interference is, in fact a transmitted spurious and not a receiver deficiency.

It was agreed that the next meeting would take place in October on a date to be determined. Members who wish matters to be raised at this meeting should place the item in writing and foward it to the Divisional office before the end of September.

REPEATERS

Mention has been made elsewhere in this issue about the changes to the VK2RCW Morse machine. It should be remembered, it is only for a trial period and comment is required from all amateurs so that its future operation can be determined. The interest for new Repeater systems continues and this generates a constant workload, together with matters pertaining to existing repeaters. Many repeaters operating in the top MHz are finding that the expansion of the paging network on frequencies between 148 and 150 Mhz is increasing the inter and cross modulation problems.

Packet Radio is continuing to grow and, with it the interest in repeating or range extending systems. During July applications were being processed for systems at Newcastle, Hornsby, Terry Hills and Dural. The frequency requirements for these systems in the two metre band have still to be addressed at a national level.

Interest is also being expressed to develop an ATV repeater for the Sydney region, together with the possible addition of a 70cm repeater for the Sydney city region. A Sydney club has expressed interest in a 6 metre repeater but this presents a problem as this State has already assigned its two allocations, one to cover Newcastle in the north and the other for the Sydney region. Southern coverage, if required, will be provided by one of the VK1 allocations, perhaps from Mt Ginini — It looks like the Ch 0 SBS service may be around a little longer. Ads in local newspapers, when the service extended its coverage to Newcastle and Wollongong in July, carried a statement in small print that it would be operational on 0 until the end of June 86. This is being checked since the previous close date had been set as 5 January 86.

A two metre repeater has been developed for Goulburn. It is on channel 7325 with the call VK2RGN. It has been established at a test site near the city and it is planned to later relocate it to the local RF hill above the city. This frequency may present a problem should a future 148 MHz pager be installed on the same hill, which already has one just below 150 MHz.

The ATV repeater planned for the Sydney region, is expected to have its input on ATV 1, (426/431) and its output at 50cm. It is likely to include the ATV liaison 2 metre voice repeater of ch 7300 and the simplex channel of 7400. Location is likely to be in the Blue Mountains. An application for a similar ATV repeater in Newcastle is currently in the processing stages.

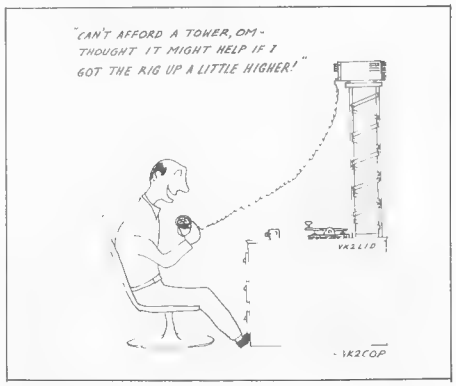
Not everyone agrees with repeaters and, in the limited spectrum space at 70 and 50 cm, consideration has to be given for those who wish to carry out simplex operation. The Sydney region, with its terrain, will be difficult to cover from any single site.

AR

Jeff VK2BYY, Divisional Secretary and Dural Officer talking to Jim VK2BVD, Chairman SADCG, at Amateur Radio House.

David Mackay VK2ZMZ, State WICEN Co-ordinator (left) talks to Barry White VK2AAB, Sydney North Regional WICEN Co-ordinator at Amateur Radio House.

Photographs courtesy VK2ZHE



THE 'BITS AND PIECES' OF PACKET RADIO

The average Packet Radio station consists of three major parts which must be interconnected. These are the two metre rig, the TNC (Packet Controller) and the computer. Many questions have been asked about these parts and their interconnections in conversations on Melbourne (and other) repeaters.

The two metre rig most often used is the IC22, though many other rigs are just as suitable. The main requirement of the rig is that it should have solid state transmit/receive switching to enable it to keep up with the fast turn around times involved in alternately sending and receiving packets. It is also an advantage if the rig can be permanently set to one channel so that if the power should go down it will power up on the same frequency again.

There are several connections between the rig and the TNC. Audio from the TNC to the rig is usually fed into the mic circuit. The audio from the rig to the TNC is normally tapped off at the discriminator to avoid the distortion of the audio amp. These two connections allow the TNC to send and receive information from the rig. Of course the TNC has to be able to 'drop the button' so a connection is made to the 'press to talk' line. The last connection made is to the squelch line in the rig so that the TNC can know when the channel is being used and not interfere with any other transmission.

Packet Radio is a simplex mode, even when using a Packet Repeater (Digipeater). As such, all activity is on one frequency and there are no repeater offsets, etc. Packet is not generally sent over voice repeaters as these have phase distortion and long turn around times which upsets packet rigs — quite apart from the upset it would cause other users of the voice repeater.

The TNC (or packet controller) has two basic parts. The one connected to the rig is a modem. This converts the 'ones and zeros' of digital communications into upper and lower tones which are more suited to transmission. It also contains the converse function of turning the received tones back into ones and zeros to feed into the other part of the TNC which is a dedicated microcomputer. The modem is integral to the TNC and is not suitable for use on the phone system as it does not have line matching and isolation circuits, is not full duplex and does not operate on audio frequencies which are commonly used on the phone network.

The dedicated micro in the TNC accepts commands from the computer, responds to them and assembles and disassembles packets. Packet is a 'high tech' mode and requires a certain degree of intelligence in the controller — hence the dedicated micro.

The commands used to command this controller are not overly complicated. To establish a connection with another station (which is like beginning a contact) the instruction 'ESC CO VK3XYZ' will do the trick. The escape character is to say that this is the beginning of the instruction, the 'CO' is a connect instruction and the call sign of the station to connect to. To finish a connection one simply types 'ESC DI'. It is not necessary to tell the TNC who to disconnect from as it already knows. There are many other commands of varying complexity but fortunately the more complex the command, the less likely they are to be needed. For those who wish to get into the 'nitty grittys' the complete command summaries, protocol specifications, circuits and programmes, which run the TNC, are all readily available.

There has been far too much hooey said and written about which TNC and system to go with. The American TNC will not handle any protocol other than AX.25. The present Canadian TNC and the new Australian designed TNC (which will be available in a few months) will handle the Canadian V2 protocol and the American AX.25 protocol. It will also cost about half. (Roughly $200 for a kit.)

There is no specific computer required to connect to a TNC. In fact a 'dumb terminal' is quite sufficient. The normal computer has a keyboard and screen. A small programme is needed to take the output from the keyboard and send it out the serial port to the TNC. This programme must also be able to take the output from the TNC which arrives at the serial port and feed it to the screen. No great intelligence is required of the computer as the TNC does most of the work. This is done by programmes built into the TNC. They are stored in EPROMS and may be upgraded easily.

One of the great advantages of Packet Radio is that advances in the technology won't require you to buy new gear, merely upgrade the programmes stored in the EPROMS.

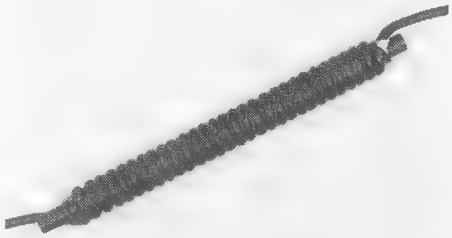
The TNC has auto sensing, which allows almost any baud rate to be used between the computer and the TNC although it is recommended that a baud rate of at least 1200 be used. By typing a series of commas and full stops the TNC will decide for itself what baud rate, parity, number of stop bits and number of data bits are being used and it will automatically adjust itself to suit. The normal connection between the TNC and the computer is simply joining wires 2, 3 and 7 of the DB25 connectors together.

Should you have any enquiries please feel free to contact the Sydney Amateur Digital Communications Group at P.O. Box 231, French's Forest N.S.W. 2086 or the Melbourne Packet Radio Group at 57 Laity Street, Richmond, Vic. 3121.

TRY THIS

Geoff Griffiths VK6YR
9 Hicks Street, Leeming, WA. 6155

T.V.I.?



If TVI or RFI is still a problem at your station perhaps the use of ferrite RF chokes will provide a suitable solution.

This method serves to isolate the offending unit from RF energy entering via the mains power cable and TV antenna coax outer braid.

Construction is straightforward, as may be observed in the photograph and consists of winding as many turns as possible of both the mains power cable and TV 75 ohm cable around separate 194 mm ferrite rods. The windings are secured using nylon wire ties and a layer of insulation tape.

Both chokes should be installed as close as possible to the TV set.

An additional high pass filter may also be required as in my case to eliminate the last trace of interference.

Audio systems with a breakthrough problem could also benefit from a power line choke and separate speaker line chokes made in a similar way.

QSP

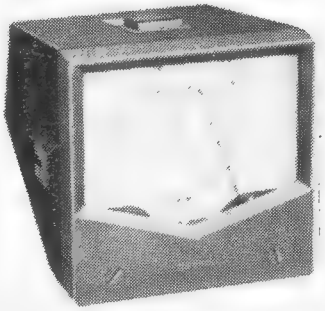
COMPUTERISED COMMUNICATION

A new type of computerised communication, termed Teladex, that provides a less expensive way of sending telex messages to any part of the world,will be introduced to Australia by a mission led by Mr Norman Frampton, Chairman of Framptons UK, this month.

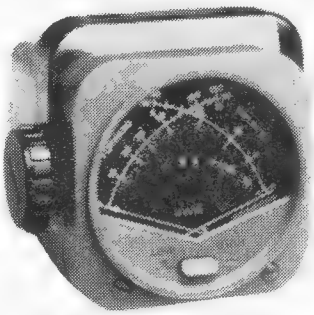
The system is claimed to be more modern and cheaper than telex, even though it involves higher technology equipment and a reasonable degree of computer skills. Teladex transmits commercial messages by computer using national packet switched networks, which are themselves connected through a teladex host computer located at the company's headquarters in England, which acts as a sorting "office".

It is stated, that Australian users could save up to half their cost of telexes to Europe, if their usage is at least eight minutes per day.

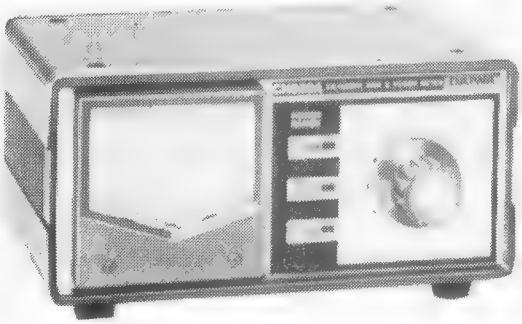
DAIWA UNIQUE CROSS NEEDLE SWR & POWER METERS



CN-520, 1.6 MHz-60MHz, 200W-2kW $89
CN-540, 50-150 MHz, 20-200W..... $99

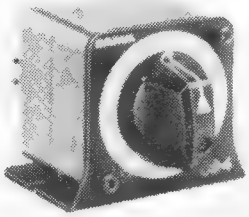


CN-410M, 3.5-150MHz, 15-150W.....$95
CN-460M, 140-450MHz, 15-150W... $99

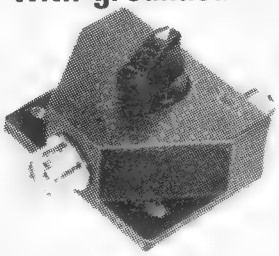


CN-620A, 1.8-150M, 20-200-1KW... $149

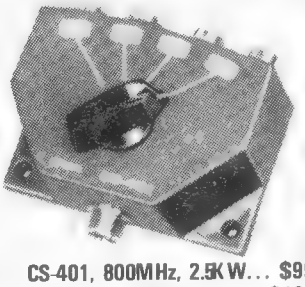
COAXIAL SWITCHES with grounded unused terminals



CS-4, 1.5GHz, 500W..... $49



CS-201, 600MHz, 2.5KW... $33
CS-201G, 1.3GHz, 2.5kW... $55



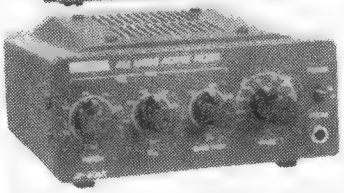
CS-401, 800MHz, 2.5KW... $99
CS-401G, 1.3GHz, 2.5KW $129

POWER SUPPLIES

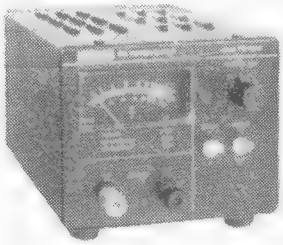
PS-310M, 13.8V 31A DC..... $395

CNW-419, ANTENNA TUNER.....$387

DK-210
ELECTRONIC
KEYER
$199



AF-606K ACTIVE
FILTER
$159



PS-120M, 13.8V, 12ADC..... $219

DAIWA'S NEW MULTI TORQUE ROTATOR
Model MR-750E

$360
incl. motor

Check These Features:

1. The rotator frame can house up to 4 motors to increase the torque and load capacity of your antenna system.
2. Each motor is equipped with a Super Wedge and Clutch brake system which works independently from the main frame gear train.
3. Maximum brake power is 18,300 lbs/in when 4 motors are installed. The main frame and reduction gear train have been designed to withstand maximum wind loading.
4. The motor unit can be dismantled easily for maintenance if required
5. A $1\frac{1}{2}$" to $2\frac{1}{2}$" diameter can be installed and aligned easily with the rotator center.
6. Low voltage (24VAC) motors are used to ensure safety during installation work on the antenna tower
7. Low cost 6-wire control cable can be used for the low voltage motors.
8. The control panel can be removed easily for calibrating the direction indicator.
9. Balanced type control knobs have quick lock mechanisms on both sides.
10. The advanced Super Wedge and Clutch brake system (Slip clutch type) provides exceptional holding power and protects the rotator mechanism from excessive torque.
11. Lower mast bracket MS-1 is available (optional).

		MR 750E/PE
Rotation time	50 Hz	70 seconds (50 Hz input)
Output torque Brake power	1 motor	700 kg/cm (608 lbs/inch) 6,000 kg/cm (5,215 lbs/inch)
	2 motors	1,400 kg/cm (1,217 lbs/inch) 11,000 kg/cm (9,560 lbs/inch)
	3 motors	2,100 kg/cm (1,825 lbs/inch) 16,000 kg/cm (13,906 lbs/inch)
	4 motors	2,800 kg/cm (2,433 lbs/inch) 21,000 kg/cm (18,251 lbs/inch)
Rotation angle		375 degrees
Permissible mast size		38 mm – 63 mm (diameter)
Control cable		6 wire cable 0.5sq – 1.25sq (AWG16/18/20 etc.)
Continuous running		5 minutes Max. permissible
Unit weight		7.5 kg (with 1 motor unit fitted)

EMTRONICS
Retail Division of EMONA ELECTRONICS P/L
94 Wentworth Avenue Sydney NSW. 2000, Ph. 211 0988

CORRESPONDENCE & MAIL ORDERS:
Box K21, Haymarket NSW, 2000, Australia
WRITE, PHONE OR CALL IN!

HOW'S DX

Ken McLachlan, VK3AH
Box 39, Mooroolbark, Vic 3138

While the bands are a "little" on the dead side, of what we are used to, and whilst tuning around for the elusive DX, which is around if you are in the right place at the right time, have a listen for some of the intruders that are taking advantage of our non-activity, to "move in". Remember that these intruders, once in, will want to stay and when the bands improve as propagation increases one will find that they will have to contend with QRM emanating from outside the amateur service, whilst trying to renew old acquaintances as well as make new friendships. Your Divisional Intruder Watch Co-ordinator or the Federal Co-ordinator, Bill VK2COP, will welcome your contributions and you will be assisting the hobby, not only on a national basis but for amateurs worldwide.

Another very worthwhile activity, whilst the sunspot minama is present, is to join a WICEN group. I would be prepared to say that all WICEN groups need volunteers and again this is one way of keeping your operating skills honed to the sharpness you will need when that DX does return. Of course, you will be assisting in exposing the hobby to the public, whilst preparing for disasters if they should unfortunately occur.

WICEN operations have provided very necessary communications, particularly in the last decade and no one knows when your skills, gained through a hobby interest, may be needed in an emergency, no matter where you reside. Contact your WICEN co-ordinator now and register your interest, it is a facet of our hobby that will assist the community at large as well as you becoming the member of a very efficient organisation under the banner of the Wireless Institute of Australia.

ZM PREFIX

All ZL operators have the optional choice of using the ZM prefix from the 1st of October to the 31st December. This prefix has been allowed by the authorities to celebrate the Sixth Conference of the IARU Region 3 Association, to be held at the Rose Park Hotel in Auckland between the 13th and 17th of November, 1985.

PITCAIRN ISLAND

DXing from this exotic island may be easier in the near future. It is believed that there are plans afoot to build a five unit motel and there is now a yacht running out of Tahiti that services the island at intervals. So DXers, there is something of a difference, if not to do, then dream about!

WANTED COUNTRIES SURVEY

Gerben PA0GAM, DX Editor of Electron, is compiling a list of the 100 most wanted DXCC countries in the world. He feels that this will be a guide to DXpeditioners of the future. Readers are requested to nominate the 100 most wanted countries that they require, preferably in the following form, as it is easier to transfer into the computer.

No	PREFIX	SSB	CW	BAND IN METRES					
				160	80	40	20	15	10
001	ZA	✓			✓	✓	✓	✓	✓
002	VK9L		✓				✓	✓	

The two examples are given as a guide. It is important to designate the prefix that indicates a country. Most do, except Chile is one exception that comes to mind. Gerben would like to print this survey and receipt of your wanted list marked "Survey" and posted to PO Box 39, Mooroolbark, Victoria, 3138 by the 27th September, would be appreciated. It will then be computerised and printed in this column. A copy will be forwarded to Gerben, who will correlate this survey with other magazines' reports. This, it is hoped, will give a world wide picture and these too will be reprinted in this column.

All amateurs and SWLs are urged to assist in this project, as Dxpeditions are becoming more costly and it will give the adventurous an indication where to proceed to for maximum satisfaction of the dedicated DXer.

To carry the project a little further, an indication of the WIA member's interest in the WARC bands, Maidenhead System, IOTA and Oblast hunting by a simple yes or no would be appreciated. It is not mandatory to indicate a call sign or identification on any submission. Your assistance will be greatly appreciated.

BURMA SOON????

Mike JH1KRC, Editor of The DX Family Newsletter, is of the opinion that a legitimate Burmese station under Governmental control may appear in the not so distant future. Let us hope that he is correct, as apart from being a much wanted country there are many of the OTs, who I am sure would like to get back on the airwaves and rekindle friendships of many years ago.

8J9IYY

This station will be active this month to commemorate "International Youth Year 1985". QSL to the JARL Bureau. Other stations that have been active throughout the year for the same commemoration, such as 8J6IYY and 8J8IYY are also to be QSLed via JARL.

COMPLAINTS

VKs are not the only ones to be awaiting cards from Roly ZL8BQD/ZL0AJW. Two "G" stations have at last received their cards from ZL1BQD. The "mail gone astray" ploy was again used but numerous letters, including one to NZART brought results. The question now is what about the FK0RR cards? Incidentally the FO0XX cards should have been mailed by now.

The whole scenario is reminiscent of the plight of Chris ZL4OY/A, before Bill VK3DWJ, stepped in and promptly put things straight.

SAILING AROUND THE WORLD

Max PA3DBB, and his XYL Yvonne, have commenced a trip that will take three years in a 13.5 metre yacht named the "En Passant". Max will be QRV on all amateur bands using an IC720A. The rough itinerary is for visits to Portugal, Gibraltar, Caribbean Islands, Panama Canal Zone, Galapagos, French Polynesia, Tonga, New Zealand, Bali, Mauritius, South Africa, Brazil, Venezuela, Bermuda and the Azores before returning to Europe. A nice trip Max and Yvonne but why is VK not included? You would be made very welcome, I can assure you!

CARDS AVAILABLE

Ron ZL1AMO, well known for his expeditions, still has logs for the following which you may need.

5W1CW — August/September 1980. A35EA — August/September 1980 and March/April 1985. FW0BX — October 1984, H44RW — April/May 1981. VK4ANS/LH — July 1981. VR6HI — March/April 1979. YJ8RW — November/December 1981. ZK1CQ — August 1979/April 1982. ZK1MB — August 1979. ZK2EA — August/September 1980. ZK9RW — October 1983. ZL1AMO/C — November 1980 and March/April 1983. ZL7AMO — May/June 1984 and ZL8AMO for October 1983.

Another source for cards you may have missed is Dieter OE2DYL. Dieter has logs for the following operations.

5W1DE/DO February 1981, A22EL — September/October 1982, A35EL/A35XX — February 1981, C21NI — September 1981, CR9EL — February/March 1981, OE1ETA/KH6/KH8 — September 1981, OE2VEL/KH6/KH8 — September 1981, OE2VEL/ZS3/3D6 — September/October 1982, OE2VEL/ZS6 — September 1982, T2VEL/T2ETA — October 1981, T30BG/T30BF — September 1981 and ZK2EL/ZK2TA — September 1981.

A self addressed envelope and 2 IRCs, plus your cards sent to Ron or Dieter's QTH should result in a prompt return of QSLs via Air Mail.

Well known DXer Saty NH6J/NH8, with the "rig" on his last expedition.

HELP WANTED

For the past fourteen years, George Hicken W4GH and Tom Carten K1PZU have been recording each monthly edition of Worldradio, a publication that is brimming with interest with all facets of the hobby.

They have been sending out about 300 tapes monthly, to the less fortunate amateurs and SWLs who are blind. This excellent service is open to all and they are asking for donations so that they may be able to purchase a high speed copier. It is known, but not publicised, that the costs so far have been borne out of their own pockets. If you know of someone who would like to receive this excellent magazine on tape or you feel that you may be able to financially assist, please contact them, by writing to George Hicken W4GH, PO Box 7497, Macon, GA 31209 USA.

ISOLATED

Dan 5H3FG and Doreen 5H3DG (who also hold the calls VE7AHV/EP2QM and VE7CYY respectively) are operating from the vicinity of a small paper mill about 640km from Dar es Salaam. QSL to Mr and Mrs D Giles, C/- Stohert Group, PO Box 6306, Dar es Salaam, Tanzania.

SOUTH PACIFIC MAP

The State of Hawaii has published a map of the South Pacific. It is believed to be free by a request to the Hawaii Information Office, PO Box 2359, Honolulu. It is felt a couple of IRCs or one "green stamp" would defray postage charges.

MAPS AGAIN

It appears that Geoff Watts, well known in DX circles, has come across a National Geographic Map of the USSR showing all the Oblasts (Map No 02396) and may be obtained from National Geographic Services, PO Box 19, Gullford, England for approximately six pounds which includes packing and postage. A bit pricey, but good value for Oblast hunters.

SUNSPOTS

Lee KH6BZF, reports in a recent issue of his Newsletter that the Sunspot Index Data Centre in Brussels has given the following Definitive Sunspot Numbers for the first quarter of the year. If you feel like being despondent, then read on.

The Mean Numbers for January, February and March were 16.5, 15.9 and 17.2 respectively. The day by day figures show many zeros but 59 was recorded on the 21st of January. What will the next report indicate? It really is a lottery at the moment.

Lee, quite a humourist, ends each Newsletter with a quote. The latest printable quote says "Science is truth . . . don't be misled by the facts"!

UGANDA AND SAO TOME

It appears that the ARRL DXCC Desk will accept cards for QSOs held after the 28th August 1984, for stations signing 5X5XB and 5X5WR. Don Search, the administrator of the ARRL DXCC, says that he must see documentation to validate Luis S92LB's operation, before any credits can be given. By the time the VKs and Pacific area get a chance, let's hope the documentation has been received. It could be a long time before many VKs make a contact, compounded by propagation, low power and the great demand for Luis in Europe. The frequency band to watch is 14.180 to 14.190 MHz for SSB and 14.005 MHz for CW if it is genuinely Luis???

MT ATHOS AGAIN

Apparently DL7FT was heard signing DL7FT/SV/A recently and expounding the fact that he had no written permission but to deluge the DXCC Desk with the cards. It is hoped this is myth rather than truth, as I am astounded that a well known DXer would try this approach to get "accreditation" from the ARRL, through intimidation, with its impeccable record and secondly further jeopardise any glimmer of hope of getting the authorities at Mt Athos to reverse their stand, as regards the hobby.

BITS AND PIECES

Masao JY9MG is quite active from Jordan. Another active station is JY9RL. QSL to WA6POZ ** ZV2ADV was a Brazilian station using the call for the annual Fire Prevention Week. ** The Pribilof Islands may yet become a new country, hold onto those cards. ** Tom K0VZR, was not successful in receiving the logs of the late TL8TX and is returning the cards. ** All XF4MDX cards have been mailed, have you received yours? ** 5A1AB has been heard and quotes G4UZO as the QSL route. If you have the chance work him and wait for further advice. It may save some IRCs and postage! ** George VE3FXT is operational in Europe with an itinerary of operating as G3WNE, GD3WNE, GW3WNE, EI9TVF, 9H1CR, ZB2HF, 4U1ITU, GU and GJ. ** The Egyptian authorities may be reticent to license visitors working or having extended holidays in that country, ** Y40TOR was QRV from Torgau, situated on the River Elbe, where the US and Soviet Armies met. Y40BUC was QRV from the site of the former Concentration Camp at Buchenwald. Both stations were active during VE Day Week. ** IS0CPU/IM0 was operational from Serpentara Island by IS0AEQ, IS0CPU and IS0XDB. ** A browse through overseas Newssheets shows that quite a number of well known overseas DXers, from many call areas, are being heard on the WARC bands. ** ZC4 operations in the future can only be from personnel located there for a period in excess of six months. Apparently it is because a European operator offended someone and had his licence rescinded! ** The T4 prefix appears to be coming out of Cuba! ** The prefix VX6 was to celebrate the 100th anniversary of the City of Lethbridge, Canada ** Vlad J5WAD, has returned his transceiver to UA4RO, for repairs to the final "chips" and is restricted to the original transmitter on 14.158 MHz. Another additional hassle is a limited fuel supply for the generator. ** UA1OT is operating out of Franz Josef Land. BY0AA and BT0MMN are reported to be in CQ Zone 23.

THE SECRET OF L30042

A couple of issue ago, I intimated that Eric L30042 had an impending change of lifestyle. Well the accompanying picture tells all. Eric received another "ticket" in the form of a marriage certificate at St Matthew's Church, Marryatville, SA on the 25th May. Congratulations and much happiness to you both for a long and happy future.

Aline and Eric signing the register.

KERMADEC

As predicted in this column, many issues ago, the much wanted DXCC Country Kermadec, will be activated for a one year period. Chris ex-ZL7OY has been selected to join the meteorological party on Raoul Island commencing next month.

From October until the 31st December he will sign ZM8OY, to commemorate the Sixth IARU Region 3 Conference being held in New Zealand. From the 1st January until he leaves the island he will revert to the call of ZL8OY. Chris intends to operate all bands on CW and SSB as off-time duties from his work permit.

QSL arrangements are with his XYL, Mrs C Hannigan, The Terrace, Warrington, Otago, New Zealand who will receive the logs from amateurs in contact with Chris. Good luck with the pile-ups Chris.

SPECIAL CALL SIGN

ZL is in the news again, this time with a special event call sign ZM6ARU, that will be operational on the HF bands, around the clock from the 9th to the 18th of November.

This call sign will be used on a roster system by the ZLs to commemorate the Region 3 Conference. In addition an Oscar 10 station is to operate from the site of the Conference, the Auckland Rose Park Hotel, from the 13th to the 17th of November.

To further commemorate the event, the NZART have made available to amateurs and SWLs, a special award called the IARU Region 3 Conference Award which may be obtained by contacting ZM6ARU and two other ZM stations or alternatively five other ZM stations in lieu of missing ZM6ARU. (Seven ZM stations in all.)

Send log details (no QSLs) with 3 IRCs or A$1.00 for surface mail, 6 IRCs or A$2.00 for air mail return to the NZART Awards Manager ZL2GX, 152 Lytton Road, Gisborne, New Zealand.

RADIO CLUB de CHILE

This society transmits an international Bulletin in English and Spanish on 7.085 MHz each Saturday at 1000 UTC, directed towards the Pacific area. News of forthcoming events are welcomed and may be sent to RCCH International Bulletin, PO Box 13630, Santiago, Chile.

160 METRE ENTHUSIASTS

According to a translation by Dex W4KM, from Radio No 1 of 1985, a USSR publication and kindly forwarded by David 9V1RH/VK3QV, the 160 metre band in the USSR, as from the 1st January 1985, is as follows.

As previously, the following frequencies are allocated to the Amateur Service on a secondary basis.

1.830 to 1.860 MHz CW
1.860+ to 1.900 MHz CW and LSB-SSB
1.900+ to 1.930 MHz CW, LSB-SSB and AM.

HEARD ON THE EAST COAST

14 MHz: 3D6BD, 3B8CA, 3B8LA, 4X4YM, 5X5GK, 5Z4EG, 7Q7LW, 7P8AF, 7S7SSA, 8Q7AB, 9J2BO, 9M2EE, A22DP, AH9AC, AL7FG, BT4RUU, BV2B, CT3BM, CT2FN, EA6BH, EA8AKH, EA8AUS, FH4AA, FH8CB, FO8IW, FR4DN, FT8XA, FT8XB, GJ2LU, GW4BLE, HL9AA, JW1FM, JW5NM, KC6HA, KL7KU, LA7HJ*, OH8DX, ON5IG*, OZ1JLX*, OZ5DL/OY, T30AT, T31AT, T32AF, TI2ANL (YL), TF5TP, UA1OT, UZ0SWW/JT, VE5ADA, VE6PW, VE7CYW, VK0GC, VK9ZB, VR6JR, XE1ALT, XX9UT, Y32OC, YZ1FW and ZS1OU.
NOTE: * denotes CW.

INTERESTING QSLs RECEIVED

CE1CQZ, CE4BQO, GD4XCY, GI4NDX, HA4ZZ, HA5LZ, HA7PF, HH2VP, KL7AF, Y22WF.

QSL INFORMATION

3D6BD PO Box 254, Mbabne, Swaziland
5H3DG and 5H3FG see notes.
5T5MS PO Box 17, CH-2500 Bienne 4, Switzerland.
5Z4EG PO Box 46508, Nairobi, Kenya.
6W1NN PO Box 664, Dakar, Senegal.
7X2CE PO Box 54, Bordjmenaiel, Algeria.
9X5BJ PO Box 626, Kigali, Rwanda.
A92DU PO Box 20712, Manama, Bahrein.
A92DZ C/- 35 Brookside, Wokingham, RG11 2ST England.
A92EM C/- 30 Oban Dr, Blackburn, Lancs. BB1 2HY. England.
BY0AA PO Box 202, Wulumuqi, People's Rep. of China.
BY5RA PO Box 730, Fuzhou, People's Rep. of China.
C21BD PO Box 507, N. Sioux City, SD56049, USA.
C21DX PO Box 225, Republic of Nauru.
CO7FM PO Box 247, Avila, Cuba.
D44BS C/- 132 Chestnut St, New Bedford, MA 02740 USA.
EH9IA PO Box 262, Malaga, Spain.
EL2P PO Box 1929, Monrovia, Liberia.
FH4AA PO Box 4, F-97600, Mamotzou, Mayotte.
FH8CB PO Box 50, F-97610, Mayotte.
HS0A PO Box 2008, Bangkok, Thailand.

QSL MANAGERS

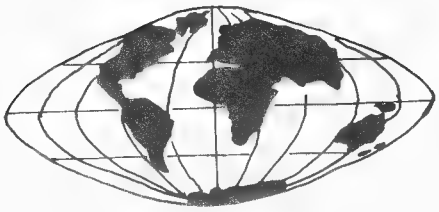
3B6BD:N3DLO, 3C1BC:K4PHE, 3C1YL:N4NX, 4N7A:YU7AJH, 4U0ITU:F6EYS, 5H3QM:VE7QM, 5J0LR:HK1QQ, 5N6CJR:K6EDV, 5N9GM:I8XIU, 5T5CJ:W4BAA, 5V7NG:WB4LFM, 5V8WS:DJ6QT, 5X5GK:DJ5RT, 7S2SSA-SK4AU/SM6CVE, 9J2JN:KB2ZP, 9Q5MA:K1VSK, 9U5JB:ON5NT, 9X5AL:SM5IR, 9X5WP:WB6UKD, 9Y4F:VE7DRW, A22ME:AK1E, A22TE:AK1E, A35PP:ZL4QS, BT4RJU:JA1RJU, BV0AC:JA9AG, C6ABA:G3AMR, C31MD:FE6AJA, C50RCL:CT1ASY, CN8EL:W2PD, CT0BI:CT4UW, CX9AU:CX2SA, D68AM:WB2OHD, D68AR:F6ACB, EA9KF:WA6OTU, EC9FS:EA9IB, EL1G:WD9IDS, EL8E:GM4LDU, EL2FJ:JF2QHC, EM3W:UZ3AXJ, EM5BYY:UB4YZZ, EO1AOK:UZ1OWA, EO1AZK:UZ1ZWX, EP2SV:K6KM, FE5RV/TK:F5RV, FM7CT:N7RO, FT8XA:F6FYD, FT8YY:F2MO, GB1BOY/GB2BRC/GB2GG/GB2RUB/GB3WED:G4IVJ, GB4LI:G4NWZ, GB8WED/GE3VGG:G4IVJ, GV4BVE/GV4OVE:G4AAL, HH2CQ:WD4IKI, J73LC:KF4IL, J73RM:VE3DFD, J87J:K4UEE, J87JCG:KA9JCG, JV2HG:JT1BS, JW5NM/JW6VDA:LA5NM, JY8AD:A71AD, JY9CL:G3MUL, K8CRM/KH3:K8CRM, KP4USN:KA4YUX, ON5OS/4S7/VS6:ON5OS, OX3BJ:OZ7BW, OX3OA:OZ1FAO, OX3CX:SM6HCX, P29RS:W2IVY, SJ9WL:SM4FTF, SV0DV:WB4TDB, TF5BW/TF5EP:W3HNK, UA1OT:UB5KW, VK0DJ:VK3DYL, VK9ZB:VK6YL, VP8PU:WA4JQS, VP5GEX:K0GVB, VP8BDC:G4NKO, VR6AB:ZL4DW, VS6DQ:HB9AQZ, XF4MDX:XE1MDX, XX9UT:JA1UT, ZC4ZN:PA0GMM, ZD8AL:W2AL.

THANKS

Sincere thanks go to the following. The Editors of weekly, bi-weekly and monthly newsletters including the ARRL NEWSLETTER, RSGB DX NEWS, QRZ DX, LONG SKIP, DX FAMILY FOUNDATION NEWSLETTER, JAN and JAY O'BRIEN'S QSL MANAGER LIST and KH6BZF REPORTS. Magazines including, INTRODUCING NAURU, DECADE, CQ, cqDX, QST, RADCOM, JARL NEWS, JA CQ, 73 for Radio Amateurs, BREAK IN and VERON.

Members who have contributed include VKs 2PS,EBX, 3FR, YJ, YL, 4AIX and G3NBC. Overseas amateurs include G1EOD and ZL1AMM. Sincere thanks to one and all and good DXing.

AR



VHF UHF - an expanding world

Eric Jamieson, VK5LP
1 Quinns Road, Forreston, SA 5233

All times are Universal Co-ordinated Time and indicated as UTC.

AMATEUR BANDS BEACONS

Freq	Call Sign	Location
50.005	H44HIR	Honiara
50.008	JA2IGY	Mie
50.075	VS6SIX	Hong Kong
50.109	JD1YAA	Japan
51.020	ZL1UHF	Mount Climie
52.033	P29BPL	Loloata Island
52.100	ZK2SIX	Niue
52.200	VK8VF	Darwin
52.250	ZL2VHM	Manawatu
52.310	ZL3MHF	Hornby
52.325	VK2RHV	Newcastle
52.370	VK7RST	Hobart
52.420	VK2RSY	Sydney
52.425	VK2RGB	Gunnedah
52.440	VK4RTL	Townsville
52.450	VK5VF	Mount Lofty
52.460	VK6RPH	Perth
52.465	VK6RTW	Albany
52.470	VK7RNT	Launceston
52.490	ZL3SIX	Blenheim
52.510	ZL2MHF	Upper Hutt
144.019	VK6RBS	Busselton
144.410	VK1RCC	Canberra
144.420	VK2RSY	Sydney
144.465	VK6RTW	Albany
144.565	VK6RPB	Port Hedland
144.480	VK8VF	Darwin
144.800	VK5VF	Mount Lofty
145.000	VK6RPH	Perth
147.400	VK2RCW	Sydney
432.057	VK6RBS	Busselton
432.160	VK6RPR	Nedlands
432.420	VK2RSY	Sydney
432.425	VK3RMB	Ballarat
432.440	VK4RBB	Brisbane
1296.171	VK6RBS	Busselton
1296.480	VK6RPR	Nedlands
10300.000	VK6RVF	Roleystone

According to the "West Australian VHF Group Bulletin" for July, the Kalgoorlie Beacon is still off the air, so this has been removed from the listing for the time being. Also from the same bulletin came a report that the Perth beacons were off the air during June due to spurious emissions 900kHz either side of the carrier, being traced to a leaking electrolytic capacitor in the power supply, causing instability. The permanent location of the beacons on the Channel 7 TV tower is not expected to be available for a couple of months, so the beacons are to be re-installed at Nedlands.

ON SIX METRES

Although somewhat quiet from the VK5 viewpoint, nevertheless, there have been a number of six metre openings to the eastern states possibly the best being on 9/6 with contacts to VK2, 3 and 4 over the period 0400 to 0700. Roger VK2XJ seems to have been particularly active. He was also noted again on 22/6 and 23/6 along with others. Locals involved included VK5s ZDR, ZBU, ZTJ and RO. VK4RO was heard on 13/6 working into VK3 but faded out before I could catch him.

A letter from Jim VK2IS, at Coffs Harbour says he and Bruce VK2DDU had a QSO with Tony ZL1BHX on 52.050 at 0142 on 23/6. Signals were 3x5 to Jim and 5x5 to Bruce. ZL1BHX continued to call CQ until 0200 without success. Thanks Jim.

According to Graham VK6RO, the 6 metre operators in Japan have been finding conditions rather quiet. At the time of writing in June, according to "CQ ham radio" from Japan, the last notable contacts were in March with contacts to VK4s FXX, JH, JXZ, ALM, AJL, DV and DU1GF. Even beacon reports are missing.

I received a report that Kim VK9ZB, is now on six metres from Willis Island and would like contacts with VK stations.

TWO METRES REPORT

Received a nice letter from Bruce VK4KIT, from Mount Isa, a place we occasionally hear on six metres but not on two metres. Bruce says two metre repeater operation on VK4RMI channel 6700 predominates due to their somewhat isolated location. The repeater is 200 metres above the surrounding country side and gives reliable coverage up to 60km in all directions with contact points up to 120km being available to well equipped mobiles. About nine stations are operational on the repeater including VK4ZDQ, recently operational from Cloncurry. Little monitoring is available to passing mobiles during working hours, as nearly all operators are wage earners, giving the appearance of a deserted band.

Two metre simplex activity except for cross town contacts is generally intermittent, due to lack of stations at the distances required to enable contacts to be made. However, the following are some interesting contacts: VK4BMW Hughenden to VK4YLG/FNQ at Mattaburra, a distance of 204km, a total of 269 contacts between 21/9/83 and 6/4/85 with signals Q2 to 5x9+, of these 220 contacts have been on FM and 49 on SSB or CW.

VK4BMW to VK4KIT/P at Cloncurry 340km 5x1 on SSB but with FM poor. Time 2015. Contact made on first and only attempt! VK4BMW to VK4KIT/P at Boulia 460km 5x1 SSB at 2005, again contact made on first and only attempt.

Two metre SSB signals from VK4ZDQ have been heard in Mt Isa over the extremely obstructed path from Cloncurry 100km distant.

TWO METRES UNDERGROUND MOBILE

The heading is correct. Steve VK4KHQ has written to say that recent experiments between VK4s KHQ, KIT and ARZ have led to what could be a record for amateur two metre communications.

On 4/6/85 contact was made from 1050 metres underground to Bruce VK4KIT and Roger VK4ARZ who were both more than five kilometres from the main shaft at the Mount Isa mine. The local repeater, over 10km away, was just accessible from 20 level, which is 1022 metres down. Future attempts will be made to extend this distance to the bottom of the mine at 1197 metres! Equipment used was an IC2A handheld feeding a quarter wave vertical whip.

Congratulations to all concerned. The mind boggles at the possibilities of these experiments if more power could be used to a small beam antenna. I would have thought the attenuation through so much earth would have made such contacts impossible, but it seems you never know until you try. Thanks for writing Steve and please keep me informed of your future experiments.

THE SYDNEY PATH

Doug VK3UM, reports briefly on the continuing experiments via aircraft enhancement on the path between Melbourne and Sydney. On the way of course is Canberra and the operators there have been getting in on the act.

On 1/6: VK1s VP, BG and BUC. 8/6 VK1s BG, GL, AU, VP, BUC and VK2DZV heard. 9/6: VK1s BG, AU, BUC, VP, GL and VK2s BE and BDN heard. 15/6: VK1s BG, VP, AU, GL, with VK2s BDN and DVZ heard. 16/6: VK1s BG, AU, GL, BUC. On 22/6 and 23/6 the same stations were worked. During this time Gordon VK2ZAB was absent on leave.

EME ACTIVITY

Doug VK3UM, found conditions on 22/6 and 23/6 reasonable and some quite good contacts emanated. 22/6: 0148 K1FO 439/M; 0756 DF3RU 449/449; 0900 SM0PYP 0/0 to 439. On 23/6: 0225 KU4F 449/339; 0830 JA4BLC 449/449; 0923 SM3AKW 449/449; 0940 G3SEK 439/439 (he was using a six bay antenna system); 1024 DF3RU 449/549 peaking to S6. Doug tried SSB but the DF3 was called by other stations. 1050 G3LTF 4x3 and 4x2 SSB. Thanks Doug for your continued support of the column and congratulations on your efforts largely from random calls.

There has been nothing to report from Lyle VK2ALU, lately as he has been on a seven weeks holiday overseas, meeting up with EME operators there, but eventually there should be something to report on his findings.

AIRCRAFT ENHANCEMENT OF SIGNALS

The article in July 1985 – Amateur Radio – entitled "Aircraft Enhancement of VHF/UHF Signals" by Doug McArthur VK3UM is already causing a few ripples amongst the knowledgable VHF fraternity, and as I have been mentioning this phenomena from time to time in my notes when relating to contacts between VK3UM and Gordon VK2ZAB in Sydney, the article is very timely.

Some comment is already to hand and there may be more before long. I have decided to leave the comments until next month because I will be away on holiday in August when the usual time for preparation of the October notes occurs; as there will be only a fortnight between the preparation of these notes and those for October, I will probably be scratching for something to fill the columns, so the enhancement comments will be held over together with another report I have on interference problems occuring on 432MHz in Western Australia.

FORECASTING SPORADIC E

I received an interesting letter from Roger Harrison VK2ZTB, plus a copy of a short article written by him and published in the August 1985 edition of "Australian Electronics Monthly" entitled "Forecasting for Sporadic-E propagation" and is the result of him having talked with Mr Roy Piggott, an ionospheric physics pioneer from the UK, recently. A somewhat longer report is to appear in the next issue of "6 UP".

"Spectacular propagation over distances of 1000-2500km at VHF frequencies, arising from clouds of intense ionisation that form from time to time in the E layer of the ionosphere — for TV broadcasters, a nuisance, for radio amateurs, a boon, this has long eluded efforts aimed at prediction or forecasting.

"Recent work by UK ionospherics physics pioneer, W R Piggott, shows promise that forecasting 'Sporadic-E, as it is called, may well be within reach.

"I was privileged to attend several talks Piggott gave at the Ionospheric Prediction Service while in Sydney during last April, and to talk with him afterwards.

"Previous work on 'Sporadic E (Es), amongst other characteristics, examined the Es maximum frequency. Piggott however, employed a means of measuring the excess ionisation, which provided a more useful parameter. (Actually, two parameters were used).

"Using this measure, Piggott was able to classify Es into three types: weak, strong and intense. From a communications, or propagation, viewpoint, the strong and intense types are the ones of interest.

"Piggott's study found that there are a number of observation techniques for Es activity which show promise for predicting or forecasting the behaviour of strong Es. It seems that, beyond a predetermined threshold of the excess ionisation, the chance of finding exceptionally intense Es increases significantly.

"Also, days of strong Es activity tend to be preceded by no Es activity, strong Es occurring over a 'cluster' of two or three days. Likewise, with no Es, Piggott

found that the peaks of strong Es activity get later in the day the more intense the Es gets.

"Strong and intense Es is predominantly an evening phenomenon showing up after 1800 local mean time (LMT), while weak Es is a daytime phenomena occurring between 0600 and 1400 (LMT), while weak Es is a daytime phenomena occurring between 0600 and 1400 LMT. Weak Es has a negative correlaton with strong Es.

Sporadic-E is largely a summertime phenomena, with lower activity during the winter. Summer Es is predominantly a night time phenomena, while winter Es is a daytime phenomena, Piggott found.

"He also found that there is considerable geomagnetic control over the occurrence of Es, which decreases as much as five to ten times the closer you approach the auroral zone.

"There is some 'tidal' control of Es height, which has distinct peaks and troughs at roughly 12 hourly intervals. Piggott also examined solar cycle control of Es. He found little solar cycle variation of Es heights, but from plotting 144MHz amateur band activity, Piggott found a distinct positive correlation with the solar cycle, the incidence of 144MHz propagation in Western Europe increasing markedly during solar maximum years.

"The study was done over 1983-84 for the UK Departmental Users Radio Propagation Programme. A report has been published, titled 'Problems Associated with the Forecasting of Sporadic E over Western Europe' by W R Piggott OBE, D.Sc, F.Inst.P., RAL project No N2A 3R 1477.

"Piggott concludes that Sporadic-E is much more regular in its behaviour than expected from the literature and is probably worth at least, limited study".

For those of us who have shown an interest in Es propagation over many years, we will certainly be looking forward to any other results which may come from further studies . . . . .VK5LP.

THE PROBLEMS WITH REPEATERS

From "The Propagator", the monthly newsletter of the Illawarra Amateur Radio Society, comes a report of damage incurred to the repeater installations at Sublime Point and Hill 60, when a storm hit Wollongong on the night of 6/6/85.

At Hill 60, a piece of roofing iron came adrift from the coastguard building and cut through the transmit antenna of UHF channel 8225. The innards of the coaxial collinear remained intact and the outer fibreglass sheath broke, causing the antenna to lay horizontally with its edge wedged firmly in the gutter of the building. The broken antenna has been removed for repairs and temporarily replaced with a two stack five-eighths wave vertical, on loan from Ian VK2EXN.

At Sublime Point, the mast was bent over by the wind, and is at present leaning at 45 degrees to the north west. Both 2 metre and 70 cm repeaters are functioning, but their range is reduced because of the attitude of the antennas. One of the commercial base stations at the same site was damaged by lightning also, so the Illawarra Group came out of it fairly well. However, it may be sometime before the mast is repaired as a crane will have to be used to lower the tilt-over section and the ground will have to dry out properly to enable safe access for a crane.

Those of you who have not suffered this type of damage from the wind should count yourselves very lucky. Repeaters and beacons are usually on the tops of hills, so are more likely to be affected, and the damage can be considerable.

Some years ago, I had the mast holding my eight over eight, 6 metre assembly bent to an angle of 30 degrees, as the result of one gust of wind, estimated at more than 120kmh. The bending occurred despite the mast being 50mm in diameter, with another close fitting tube inside. When the mast was brought down for straightening, it took an enormous amount of effort to straighten it, despite the fact that more than 5 metres of purchase was available and you can put a lot of pressure on a length like that!

CLOSURE

Before closing I would like to mention a paragraph from the Geelong Amateur Radio Club newsletter for June 1985, which mentioned the Club visited the Moorabool Terminal Power Station of the SEC on 23/6. The station is only two years old and has state of the art electronic control and protection equipment. That station receives power at 500kV and transforms to 220kV, to supply western Victoria. The station is also controlling the largest capacitor in Victoria, which also operates at 500kV and is 75 metres high, costing one million dollars to construct! . . . some capacitor.

Don't forget September and October are periods for possible long distance DX particularly on 6 metres, to places out in the Pacific area, in particular. I have already mentioned VK9ZB on Willis Island and there are plenty of others. These could include FK8, YJ8 etc.

Closing with the thought for the month: "The trouble with doing nothing is that it's too difficult to tell when you're finished".

73 The Voice in the Hills.

BIRTHDAY HONOUR

It is pleasing to announce that your VHF UHF editor was awarded the Order of Australia in the Queen's Birthday Honours list, last June.

Eric VK5LP has been writing the Amateur Radio column for over 14 years, a very time consuming job when one presents their notes in such a professional manner, as Eric does every month, without fail.

Eric's award was for community service spread over more than 46 years. A fitting tribute for a hard working, civic minded gentleman.

A short resume of the life and times of one Eric Jamieson follows. This information was used by the Forreston Community Centre Incorporated, who sought the award for Eric.

A member for 39 years of the RSL, including 23 years as President of the Gumeracha Sub-Branch.
Providing an amplifier service for a multitude of functions in the district, for 39 years. This includes street music at Christmas.
Assistant Returning Officer for State and Federal Electoral Departments over a 34 year period.
34 years a member of the Gumeracha Agricultural Bureau and now a Life Member.
Secretary of the Forreston Community Centre Inc for 31 years.
Member of the Gumeracha Bushfires advisory Committee for 27 years.
22 years as a member of the Gumeracha Hospital Board including six years as Deputy Chairman.
A member of the Gumeracha Camera Club for 29 years, including 17 years as Secretary.
Member of the South Australian Division of the WIA for 23 years.
A licenced amateur radio operator for 23 years.
Secretary of the former Gumeracha A H & F Society for 19 years.
Justice of the Peace for 20 years.
17 years as Secretary of the former Forreston Tennis Club.
Editor of the VHF UHF column in Amateur Radio for 14 years.
Editor of 'Community Capers', a local monthly news bulletin, for 12 years.
12 years member of the Parish Council of the Uniting Church, with six years as Treasurer of the Gumeracha Parish.
Vice-President and electrician for ten years to the former Gumeracha Social Club.
Five years as Chairman of the Torrens Valley Historical Society.
Gumeracha Country Fair Inc Secretary for four years.
Wireless Maintenance Mechanic in the RAAF from 1942-1946.
Secretary of the local SA150 Jubilee Committee for eighteen months.
Member of the Gumeracha District Local History Centre for three years.
Editor of the Forreston History Book in 1951.
Editor of 'Forreston - Its Pioneers and People' 1960.
Assistant Editor of 'History of Gumeracha Hospital' in 1982.
Winner of two Australia-wide awards for electrical articles in 'Australasian Radio World' in 1941 and 1942.
In 1938, at the age of 14, Eric was running dances for the Red Cross using records and his own home-built amplifier. At the same time he wrote a weekly column in Adelaide's newspaper, 'The Advertiser' for short wave listeners and also for the 'Listener In' in Melbourne.
In 1984, Eric received the 'Citizen of the Year' award from the Australia Day Council.

Congratulations Eric, from all your friends within the amateur radio fraternity.

CONTESTS

Ian Hunt VK5QX
FEDERAL CONTEST MANAGER

P.O. Box 1234, GPO, Adelaide, SA 5001.

CONTEST CALENDAR

SEPTEMBER

14-15 VK Novice Contest (Rules August AR)
14-15 European Phone Contest (Rules July AR)
28-29 YLRC Italiano 'Elettra Marconi' Contest (Rules August AR)

OCTOBER

05-06 VK/ZL Oceania Phone Contest (Rules this issue)
12-13 VK/ZL Oceania CW Contest (Rules this issue)
13 RSGB 21/28MHz SSB Contest (Rules this issue)
20 RSGB 21MHz CW Contest (Rules this issue)
26-27 CQ WW DX Phone Contest

NOVEMBER

9-10 European DX Contest - RTTY Section (Rules July AR)
23-24 CQ WW DX CW Contest

It is a little too early to list in the calendar the series of World Championship SSB contests run by CQ magazine, to be held in January 1986. The following extract from the rules may however be of use to intending participants.

CONTEST RULES AND FORMS: Contestants are encouraged to use official contest forms. To obtain your own copy of the rules and each contest form, send a SASE to: Contest Rules and Forms, Billy Maddox KA6JJK/3, 1162 Bayview Vista Drive, Annapolis, MD 21401, USA'.

You might note that there are five separate contests to take place on the 40, 75, 160, 15 and 20 metre bands. Full details of the rules will appear in the December issue of Amateur Radio.

CONTEST CHAMPION TROPHY

The July issue of Amateur Radio carried the details of the Contest Championship Trophy points for 1984. I would like to apologise for the omission of figures for VK3DNC, who finished with a total tally of 26 points in this competition and was thus placed fifth in the listing.

Whilst on the subject of this competition, some comment is certainly in order. I have had a certain amount of discussion in connection with the rules for the Championship and also some quite interesting correspondence, including a very comprehensive letter from Jim VK2BQS. Up until now the rules seem to have been very simple and have left a great deal to be desired, as well as open to all kinds of interpretation. The rules have been:

The entrants must operate in at least three out of the four selected contests. The contests for the competition will be John Moyle Memorial Field Day, Novice, Remembrance Day and the VK/ZL. Points will be allocated on the basis of 10 points for first, nine points for second, etc, down to one point for tenth place in each contest. The trophy winner must be a member of the WIA.

It has become obvious to me that the rules for this event need to be spelled out to a far greater degree. I would be very interested in your comments and to this end I will make a few preliminary comments myself. Firstly, the VK/ZL comprises, in fact, two separate contests, namely phone and CW with each held on different weekends. There is no way in the world that one could score the results of the VK/ZL contest on a band by band basis for quite a number of reasons. Should this approach be taken it could be feasible for an operator to win the trophy merely by entering this contest, making a handful of contacts, say 10, on each of six bands and with this meagre effort, win the trophy by simply submitting a minimum log for two of the other contests and perhaps even picking additional points for these last two, as well. If you don't believe me, just think about it just a little more, I am sure that you can work this out for yourself. Should such an operation confer 'Contest Champion' recognition?

This year, for the Remembrance Day Contest, I scored on the basis of the highest points in each call area, regardless of modes used. Should this really be the approach used? Would it be fair to allocate points along the following lines scoring for each section on a separate basis, eg VK1QQQ scored 800 points. (800 phone QSOs). VK1PPP scored 250 oints. (250 CW QSOs). VK1LLL scored 160 points (170 phone QSOs and 10 CW QSOs). With each of these operators being the top scorer in their individual sections should they deserve ten Championship Trophy points for their efforts? If VK9GGG enters the only log for his call area with a total of ten contacts in the same contest, should he also receive ten Championship points? Should there be two separate Championship competitions for phone and CW? Where an operator can enter either the phone and CW sections or both in a contest, such as the VK Novice Contest, should he be allocated points for each mode even if he may gain perhaps nine points for being second in his call area with five CW contacts? Should points be allocated on a call district basis or should they be worked out on a national basis only? Would the latter approach always favour particular call areas, thus making it pretty well impossible for operators in some areas to have a proper chance of winning? *(I believe that it would...FCM).*

So, perhaps you can see that the present rules are definitely very much lacking and also that it is not necessarily a simple matter to come up with a satisfactory set of rules. I hope that having addressed this problem, which has been apparent for some time, I might be able, with your help, to come up with a worthwhile method of determining who should receive the trophy.

CONTEST CALENDAR

The sharp sighted and contest aware persons may have noticed the misprint in the July Contest Calendar where it appeared that the SARTG RTTY Contest was on two different weekends. I hope that the error will have been corrected in the August issue, where you should see that the GARTG RTTY Contest is on the 24-25th August.

CERTIFICATES

The backlog of certificates is slowly still being overcome, with the help of a lovely lady named Florence, who is most adept with the pen. Florence is very neatly hand lettering all the certificates, rather than have me use the more mechanical method I had intended to employ. The hand lettered approach does however, take a great deal more time when the task is fitted in between other work, which has priority. I have received letters from VK2PMX and P29ZL on the subject of certificates, so this comment should suffice to show that you are not being ignored. The letter from P29 certainly went the rounds due, for some reason, to the postman not looking closely at the name, and other indications as to the correct destination for the original letter.

ROSS HULL CONTEST

My report to the 1985 Federal Convention asked the question as to whether or not this contest should be continued in view of the constant lack of support over the years. My question seemed not to have been addressed by the convention and I am at a loss as to just what the true opinion of our fraternity is on this subject with very little feedback available from members. No more than a couple of operators present at the Federal Convention seem to have ever operated in this contest. Peter VK3YRP has provided me with some interesting statistics. These show that over a period of seven years only 21 VK operators have entered the contest on more than one occasion and over the last three years, only 12 of these have been in the contest more than once, with only seven entries in the latest effort. Now, come on chaps. Surely you don't expect me to believe that there really is any interest in this contest with results like that or that the Federal Convention can make a proper decision, with such a lack of support evident!! Over to all the real VHF types out there.

*SECRETARY'S NOTE....*At the 1985 Federal Convention, the future of the Ross Hull contest was discussed and the majority of delegates were in favour of keeping this contest 'alive and kicking' by improving the publicity given it. All VHF enthusiasts should enter the Ross Hull Contest and send in their logs to the FCM and in so doing, give this contest a boost.

FIELD DAY CONTEST

Some recent research came up with the following: 'In this contest VK4 made the second highest contribution to contest logs with 15 logs submitted, as against 17 for VK3, 10-VK2, 9-VK5, 6-VK6 5-VK1, 3-VK7 and 1-VK9.

What is just a little disappointing though is to see, as I went through the logs checking several aspects, that in fact there were at least 46 VK4 stations alone, giving out numbers in the contest, so what happened to the other 31 logs, which could have been sent in from that state? Even more to the point is the question, as to just how many more logs could have been sent in by all the other states to show support in this contest? I would perhaps hope, that the change of date for the Field Day Contest next year might spark a little more interest in what I believe to be a very good and most enjoyable event.

In late June, the ARRL held their Field Day Contest and I very much enjoyed a contact with an operator assisting in setting up one of the stations in that event. It was a contact with Carl WB6TDE/6, who is a member of the TRW Radio Club, who were entering the contest using their club call sign, W6TRW. The station, when set up would comprise seven separate operating units. For the sake of brevity, here follows a direct extract from my notes for the contact. *"Location... 1200 feet (365m) ASL, near LA Harbour. 40-15 metre bands inclusive, 2 metres, OSCAR, Packet Radio, for 24 hours. About 30 to 40 club members to operate over the period in eight hour shifts. Nine on SSB. XYLs cooking dinner, but OMs to make their own lunch. Located in a public County park. Generators for power. Natural power...solar panel for mainly VHF. Antennas - 20m monobander, three quads, 15m CW and phone, long wire for 80 and 75 m, special long antenna called Ollies Folly for 40m and a vertical for 6m. 30 feet (9m) crank-up towers for supports. Novice station, the XYL works at TRW, hence the association with the club, got the amateur ticket through the club, first field day was 13 years ago and he has missed only one since. Doesn't chase DX in FD but will work anything. A dipole for 40m CW. Last year 1055 contacts were made on 20m. Operate from travel trailer, tents, motor home and trucks. Uses TS-830S with TR4 on standby. 150 watts downwards gives extra points. Stations within a 300 metre diameter circle. Some beer and a LOT of coffee. No linears!!! 1kW generator for 20m SSB. 5.5kW generator for several of the stations'.*

I wonder if any of the above sounds slightly familiar to our local club operators here. I would think it most likely that many of us, familiar with field day operations, could appear at W6TRW/P and feel very much at home. Amateur radio certainly is the same in my experience, all over the world.

Whilst still on the subject of field days, I make mention of further communications with Jock ZL2GX, who is the Contest Manager for the NZART. The boys over the pond, are most keen to have their field day coincide with ours, thus it means that I have to make an almost immediate decision as to the date for same. I am also aware that there is a need for all the dates for the 1986 contests to be determined within the next few weeks. It would be my intention to try and choose dates which will not cause a clash with major overseas events, however, it will not always be

possible to do this, or to spread our contests as much as I would like, as well as steer clear of successive weekends with popular contests, both local and overseas. It would certainly appear that there are just too many contests.

My annual report to the Federal Convention recommended that the CW 75th Anniversary Contest should be a 'one-off' effort.

A look at this year's calendar would indicate the following CW contests are available. The French CW, ARRL DX CW, RSGB 40m CW Field Day, CQ WW 160m CW, Polish CW, CQ WW WPX CW, Venezuela CW, Europe CW, All Asian CW, Remembrance Day, VK Novice, WA 80m CW, VK/ZL CW, County Hunters CW, CQ WW DX CW, CQ-M CW, YL ISSB CW, DX YL CW, QCWA CW QSO Party, Commonwealth Contest and CLARA AC/DC.

That is at least 22 contests which the CW operator may enter and you will find that this list is not exhaustive, as there are many other events which occur throughout the year. So, who says the art of CW is dead? I hasten to add that these comments are not intended as a slap at CW operation. I indeed enjoy CW contest operation, although I would hardly ever touch a key at other times and I always use a straight hand key. Much the same kind of list and comments could be made with respect to phone contests.

My point is that contests should not be inaugurated without there being a close and proper look at what it is all about, and these comments came from one who is keen on contest operation.

I quote from a letter from ZL2GX, NZART Contest Manager, dated 21st March 1985.

"You might be interested to know that I am sick and tired of moaning and groaning from all and sundry about all the contests on the bands. I've suggested that this should be investigated. I do think there are too many....and some that are added from time to time are a lot of nonsense"

I also quote from the VK4 Division notes from Amateur Radio for March 1985...*"For some time now radio amateurs throughout the world have been requesting some contest-free operating spectrum space"* ...

So, just what is your opinion? I will be only too pleased to hear from you as the only way there is to judge just what is wanted by you, the amateur operator in general, is for us to have your comments in writing and on record.

Well, I feel I have posed more than enough questions for this month. By the time you read this I will no doubt be all geared up to deal with the inrush of logs from the Remembrance Day Contest and will have little time available for cogitation on such subjects, as aired in this issue of the contest column. Meantime, I wish all readers great success in their amateur radio activities, whatever aspects happen to be encompassed by same.

RSGB 21/28MHz SSB CONTEST RULES FOR 1985

TRANSMITTING SECTION

Eligible entrants...Overseas...All licensed amateurs.

Period...0700 to 1900UTC, Sunday 13th October 1985.

Sections...i British Isles single operator, ii British Isles multi-operator, multi-band, iii Overseas single operator, iiii Overseas multi-operator.

Frequencies and mode...21 and 28MHz, telephony only. Entrants are requested not to operate in the bands 21.400-21.450MHz, 28.200-28.400MHz and 29.100-29.700MHz.

Exchange...RS report and serial number starting at 001.

Scoring...Overseas: Three points for each completed contact with a station in the British Isles. Multipliers are G2, G3, G4, G5, G6, G8, G0, GD2, GD3, GD4, GD5, GD6, GD8, GD0, GI2, GI3, GI4, GI5, GI6, GI8, GI0, GJ2, GJ3, GJ4, GJ5, GJ6, GJ8, GJ0, GM2, GM3, GM4, GM5, GM6, GM8, GM0, GU2, GU3, GU4, GU5, GU6, GU8, GU0, GW2, GW3, GW4, GW5, GW6, GW8 and GW0. Contacts with GB stations will not count for points. For all entrants the total score will be the number of points on each band added together, times the number of multipliers on each band added together. Unmarked duplicate contacts will be penalised at the rate of ten times the claimed points. Entries with more than five unmarked duplicates will be disqualified.

Logs...Log sheets are to be headed date, time UTC, station worked, RS and serial number sent, RS and serial number received, multiplier, points claimed.

Declaration...With each entry there must be a declaration, signed and dated, that the station was operated within the rules and the decision of the council of the RSGB shall be final.

Address...Overseas entrants should send their entries to PO Box 73, Lichfield, Staffs, WS13 6UJ, England. These entries must be received by 9th December 1985.

Awards...Overseas. Certificates will be awarded to the leading station in each country and to the leading station in the multi-operator section.

RECEIVING SECTION

Rules as for the transmitting section except as varied below.

Eligible entrants...Overseas. All SWLs. Note that holders of transmitting licences for frequencies above 30MHz may enter the receiving section.

Scoring...Overseas SWLs should only log British Isles stations in contact with overseas stations taking part in the contest. Scoring and multipliers as the transmitting section.

Logs...Logs to be headed date, time UTC, call sign of station heard, RS and serial number sent by station heard, call sign of station being worked, multiplier, points claimed. A summary sheet showing multipliers heard on each band must be included. Note: In the column headed station being worked, the same call sign may only appear once in every three contacts logged except when the logged station is a new multiplier for the receiving station. Also the station heard may only be logged once on each band for the purposes of scoring.

Declaration...Each log must be accompanied by the following declaration: 'I declare that this station was operated within the rules of the contest and I do not hold a transmitting licence for the frequencies below 30MHz'.

Awards...Certificates of merit will be awarded to the leading entrant in each overseas country.

21MHz CW CONTEST RULES FOR 1985

TRANSMITTING SECTION

Eligible entrants...Overseas (including Eire) All licenced amateurs.

Period...0700 to 1900UTC, Sunday 20th October 1985.

Sections...i British Isles section, ii QRP British Isles section. British Isles station using less than 10W input, iii Overseas section (including Eire), iiii QRP Overseas section. Overseas stations using less than 10W input.

Frequency and mode...21MHz only. CW only. Entrants are requested not to operate in the band 21.075-21.125MHz.

Exchange...RST report and serial number starting at 001.

Scoring...Overseas stations: Three points for each completed contact with a station in the British Isles. The final score is the number of British Isle prefixes multiplied by the total number of points. British Isle prefixes are the same as for the 21/28MHz SSB Contest, listed above.

Duplicate contacts, Logs, and Declaration as per the rules for the 21/28MHz Contest.

Logs to be received at PO Box 73, Lichfield, Staffs, WS13 6UJ, England by 31st December 1985.

Awards...Certificates of merit will be awarded to the leading station in each overseas country.

RECEIVING SECTION...Rules as per the 21/28MHz SSB Contest.

THE 9TH WEST AUSTRALIAN ANNUAL 3.5MHz CW & SSB CONTESTS TRANSMITTING & RECEIVING

1 — DURATION: SSB Saturday 31st August and Sunday 1st September CW Saturday 28th and Sunday 29th September. On both days between the hours of 1100 and 1330 UTC. i.e. 5 operating hours in all for each contest.

2 — FREQUENCIES: All contacts to be made in the 3.5/3.7MHz band using frequency allocation applicable to your licence conditions.

3 — CALLING: Stations will call CQ WAA using the three times three technique, infringement of this rule by the use of long CQ calls may entail disqualification as will pre-arranging of a QSO.

4 — SCORING: Points for contacts are as follows:—

Within Western Australia	*5 points per contact.*
WA to all Mainland Eastern States.	*2 points per contact.*
WA to VK7	*4 points per contact.*
WA to VK0 & Overseas	*8 points per contact.*

Stations other than WA 3 points per contact with WA Stations only.

5 — MULTIPLIERS: A multiplier of 2 per WA Shire worked will apply to the final score. For WA Stations north of the 26th Parallel a multiplier of 1.4 per contact confirmed.

6 — CONTACTS: Stations may be worked twice on each night ie once between 1100 and 1300 UTC and again between 1300 to 1330 UTC these contacts will count for points. Each time the contact for WA stations will take the form of an exchange of 5 characters comprising RST/RS and Shire letters. eg a station in NORTHAM sends 579NM or if in HARVEY 579HY, this helps towards the Worked All Shires Award. Eastern States and Overseas stations will send RST/RS plus a running number starting at 001.

7 — LOGS: Contest logs to be set out on one side of a quarto or foolscap sheet with columns headed as below.

DATE:		CALL:	OPERATOR:
TIME UTC	CALL WKD	RST OUT	RST IN
	SHIRE LETTERS	SHIRE MULTIPLIER	POINTS CLAIMED

Column 7 to be totalled at the foot of each page and the running totals brought forward. The last page to contain the following summary: Total number of points scored, Input power, Equipment and antennas used, along with comments on the contest in general. SWL participants score as above using the outgoing Tx score.

All logs to be addressed to WAA Contest Committee, PO Box 6250, Hay Street East, Perth, WA. 6000 and posted so as to reach us not later than 14th October for both contests. The results for all contests will be published in the December issue of AR.

SHIRE LETTERS

1	ALBANY TOWN	AT
2	ALBANY	AL
3	ARMADALE	AK
4	AUGUSTA — MARGARET RIVER	AM
5	BASSENDEAN	BA
6	BAYSWATER	BW
7	BEVERLEY	BV
8	BODDINGTON	BO
9	BOULDER	BD
10	BOYUP BROOK	BB
11	BRIDGETOWN GREENBUSHES	BG
12	BROOKTON	BK
13	BROOME	BE
14	BROOMEHILL	BH
15	BELMONT	BL
16	BRUCE ROCK	BR
17	BUNBURY	BY
18	BUSSELTON	BN
19	CANNING	CA
20	CAPEL	CL
21	CARNAMAH	CH
22	CARNARVON	CN
23	CHAPMAN VALLEY	CV
24	CHITTERING	CI
25	CLAREMONT	CT
26	COCKBURN	CR
27	COLLIE	CE
28	COOLGARDIE	CG
29	COOROW	CW
30	CORRIGIN	CS
31	COTTESLOE	CO
32	CRANBROOK	CK
33	CUBALLING	CB
34	CUE	CU
35	CUDNERDIN	CD

36 — DALWALLINU ..... DU
37 — DANDARAGAN ..... DN
38 — DARDANUP ..... DP
39 — DENMARK ..... DK
40 — DONNYBROOK-BALINGUP ..... DB
41 — DOWERIN ..... DR
42 — DUMBLEYUNG ..... DG
43 — DUNDAS ..... DS
44 EAST FREMANTLE ..... EF
45 EAST PILBARA ..... EP
46 ESPERANCE ..... ES
47 EXMOUTH ..... EH
48 — FREMANTLE ..... FM
49 — GINGIN ..... GG
50 — GNOWANGERUP ..... GP
51 GERALDTON ..... GN
52 GOOMALLING ..... GM
53 GOSNELLS ..... GS
54 GREENOUGH ..... GR
55 — HALLS CREEK ..... HC
56 — HARVEY ..... HY
57 — IRWIN ..... IN
58 — KALAMUNDA ..... KA
59 — KALGOORLIE ..... KL
60 — KATANNING ..... KG
61 — KELLERBERRIN ..... KN
62 — KENT ..... KT
63 — KOJONUP ..... KP
64 — KONDININ ..... KD
65 — KOORDA ..... KO
66 KULIN ..... KU
67 — KWINANA ..... KW
68 — LAKE GRACE ..... LG
69 — LAVERTON LV
70 — LEONORA ..... LA
71 — MANDURAH ..... M.
72 — MANJIMUP ..... MP
73 — MEEKATHARRA ..... MK
74 — MELVILLE ..... MV
75 MENZIES ..... MZ
76 MERREDIN ..... MD
77 — MINGENEW ..... MW
78 — MOORA ..... MA
79 — MOROWA ..... MR
80 — MOSMAN ..... MS
81 — MUKINBUDIN ..... MU
82 — MULLEWA ..... ME
83 — MUNDARING ..... MG
84 — MURCHISON ..... MH
85 MURRAY ..... MY
86 MT. MAGNET ..... MM
87 MT MARSHALL ..... ML
88 — NANNUP ..... NP
89 — NAREMBEEN ..... NN
90 — NARROGIN ..... NG
91 — NARROGIN TOWN ..... NT
92 NEDLANDS ..... NL
93 — NORTHAM ..... NM
94 — NORTHAM TOWN ..... NO
95 — NORTHAMPTON ..... NH
96 NUNGADIN ..... NG
97 PEPPERMINT GROVE ..... PG
98 — PERENJORI ..... PJ
99 — PERTH ..... PH
100 — PINGELLY ..... PY
101 — PLANTAGENET ..... PT
102 — PORT HEDLAND ..... PD
103 — QUAIRADING ..... QG
104 — RAVENSTHORPE ..... RT
105 — ROCKINGHAM ..... RM
106 — ROEBOURNE ..... RB
107 — SANDSTONE ..... SS
108 — SEPENTINE-JARRAHDALE ..... SJ
109 — SHARK BAY ..... SB
110 — SOUTH PERTH ..... SP
111 — STIRLING ..... ST
112 — SUBIACO ..... SU
113 — SWAN ..... SW
114 TAMBELLUP ..... TP
115 — TAMMIN ..... TM
116 — THREE SPRINGS ..... TS
117 TOODYAY ..... TY
118 — TRAYNING ..... TG
119 — UPPER GASCOYNE ..... UG
120 — VICTORIA PLAINS ..... VP
121 WAGIN ..... WN
122 — WANDERING ..... WD
123 — WANNEROO ..... WO
124 — WAROONA ..... WR
125 — WEST ARTHUR ..... WA
126 — WESTONIA ..... WS
127 — WEST PILBARA ..... WP
128 WICKEPIN ..... W.
129 WILUNA ..... WU
130 WILLIAMS ..... WL
131 WONGAN-BALLIDU ..... WB
132 — WOODANILLING ..... WG
133 WYALKATCHEM ..... WY
134 WYNDHAM EAST KIMBERLEY ..... WE
135 WEST KIMBERLEY ..... WE
136 — YALGOO ..... YO
137 YILGARN ..... YN
138 YORK ..... YK

AR

75th Nostalgia

MORE FORGOTTEN PIONEERS OF RADIO

Norm Melford VK3ZTN
Old Coonara Road, Olinda, Vic. 3788

Following recent articles [1,2] about Nicola Tesla, it is fitting to remember others who were engaged in similar pioneering work at much the same time but in different places.

In 1871, Elihu Thompson, apprentice teacher at what became the Benjamin Franklin High School in Philadelphia USA, with Professor Edwin Houston, noticed an interesting phenomenon. They could draw sparks from various metal objects up to 30 feet (10 metres) from a Ruhmkorff (spark) coil to which they had connected a gas pipe and a wire resting on the bench.

Four years later, possibly prompted by reports of similar experiments by Edison, Thompson and Houston extended their work and used a "lead" pencil to draw sparks from door knobs throughout the building -- perhaps up to 100 feet (30 metres) from the "transmitter". [3]

This work seemingly was not developed further at that stage, but preceded by over a decade the famous experiments of Hertz, and later still, of Marconi.

Thompson, then 22 years old, was a very active inventor. He later went on to hold over 700 patents and to found the Thompson-Houston Electric Company which, in 1892, merged with Edison's company to become General Electric.

In 1895, the famous Bengali, Jagadis Chandra Bose, transmitted radio waves from a lecture hall in the Calcutta Town Hall for a distance of some 80 feet (25 metres). At the "receiver", the signal tripped a relay, fired a pistol, and blew up a small mine.[4]

This was in the year before the issue of Marconi's patent, and three years before Tesla's radio powered and controlled model boat demonstration.[1]

While Marconi, Thompson and Edison tended to concentrate on inorganic science, Tesla, and even more, Bose, seemed drawn to the study of the earth itself and of living things. This, indeed, became one of Bose's biggest difficulties. British academia, as tightly compartmentalised as Indian castes; was ill disposed to tolerate anyone brash enough to straddle the boundaries between physics, physiology, and botany (with perhaps an undercurrent of Indian mysticism lurking in the background).

A further problem was that British-ruled India was unable to accept readily a native Indian pre-eminent in science.

As his work with electromagnetic waves began, despite these obstacles, to win him recognition, Bose was becoming less and less certain about the traditional distinctions between living and inorganic matter. Moving into physiology, he noted striking similarities between metals and living tissue in their responses to various stimuli. He found 'fatigue" effects in his metal coherer radio detector which he had invented. Its sensitivity, depressed after heavy use, returned to normal after a rest period! He studied the stimulating effects of Hertzian waves on living tissue (which perhaps we are only now re-discovering in our concern about human exposure to strong RF fields). In botany, he pioneered study of the effects of sound on plants and his instruments revealed many other hitherto unknown aspects of plant life, reaffirming his conviction of the basic unity of all things.

It is interesting to reflect that all of their radio-pioneering work was going on along substantially similar lines in widely separated parts of the world, at much the same time. This, without the experimenters keeping in touch via the computer based library services, telecommunications and mail services which we take for granted today.

Amateurs of today interested in carrying on our pioneering tradition may do well to investigate the work of Bose and other, more recent work on biological (wireless) communication. Reference 4 gives an overview of these fields which, if further developed, might eclipse even radio in their importance to mankind. Way out? Of course. But so was radio at the time of Tesla, Thompson, and Bose. Now, as I check my audio, I wonder what a little more clipping might do to the plants around my antenna . . . . . .

REFERENCES

1 AR March '85, p. 22
2 AR June '85, p. 20
3 Radio & Hobbies, March 1951, p. 7
4 P Tompkins, "The Secret Life of Plants", Harper, 1984

AR

LIONS CLUB CERTIFICATE

A certificate of appreciation has been received by the Westlakes Amateur Radio Club from the Lions Club of Newcastle for a 'very worthwhile exhibit' which was prepared by the Club for a recent Toys and Hobbies exhibition. The certificate will be displayed in the Club's library.

From Westlakes ARC Monthly Newsletter

PACKET RADIO

David Furst VK3YDF.
Chairman, MPRG.

REINTRODUCTION

In Amateur Radio of May 1984 an introductory article to Packet Radio was published. Since that time, many people have asked questions about Packet Radio which were covered in that article. We take this opportunity to re-print parts of it.

Packet Radio is a method of transmitting data, without errors, from one amateur station to another across a radio network.

This new technology will be a very natural marriage of two related disciplines and groups of people, amateurs and computer hackers. It should be noted at this point that no great knowledge of computers is required to run a Packet Radio station. The packet controller may be used as a black box by those who do not wish to get too deeply involved in its inner workings.

It's all done by packaging the information into 'packets' (a packet is usually one ASCII line of text). A Packet consists of three primary parts. The first part is an address. In this case usually the call sign of the station the information is being sent to or a station identification number. The next part is the actual data to be sent. The final part is error checking information.

All the above is done by a smart box called a Terminal Node Controller (TNC) hooked up between your computer and your two way radio.

The actual workings happen a little like this: You decide to talk to station VK3XYZ and ask your TNC to arrange this. Your TNC waits until no one else is using the frequency for a couple of microseconds then sends out a packet to the effect (VK3XYZ, are you free?). If the other party is indeed free his TNC sends back another packet replying that he is free. Both TNCs then consider themselves connected to one another and will ignore any other packets floating down the ether but will send addressed packets to each other and respond only to packets from the other.

Just to be certain there are no misunderstandings, each TNC will always acknowledge that it did, in fact, hear what the other said. From this you will see that each station only needs the radio channel for the few milliseconds it takes to send a line of ASCII text, and that the channel can be used by many stations effectively simultaneously. Naturally all the TNCs are well mannered enough to understand the social niceties of getting along together and should clashes occur, they will settle their differences amicably.

As there is error checking information built into each packet it is easy for the receiving station to check if an error has occurred and request the other station to re-send the packet.

So that's it the machines consider themselves to be connected and act like they're connected even though they aren't. This is referred to as a virtual connection. A 'Claytons' connection?

Apart from all this whiz-bang stuff, what's so great about packet radio? Well, it gives you data integrity, virtual connections, can route messages, act as a gateway to other systems and get heaps of information from lots of people across just one radio channel. Pretty neat,huh?

It can be used for 'chatting', interchange of programmes, dissemination of information, a gateway onto amateur radio satellites and other packet systems (amateur and professional), playing games such as Space Empires, access to computers that people may choose to put 'on line' and bulletin boards.

The whole area is so new that we really don't have much idea of what the full possibilities of the system are.

Cost? Well the packet controller '(TNC) costs about $200 to build up and hopefully you already have a two metre rig and a computer with a serial port.

The chosen frequencies are 147.600 MHz, for the main channel and 147.575 for a sort of 'chat' channel. Others are under consideration.

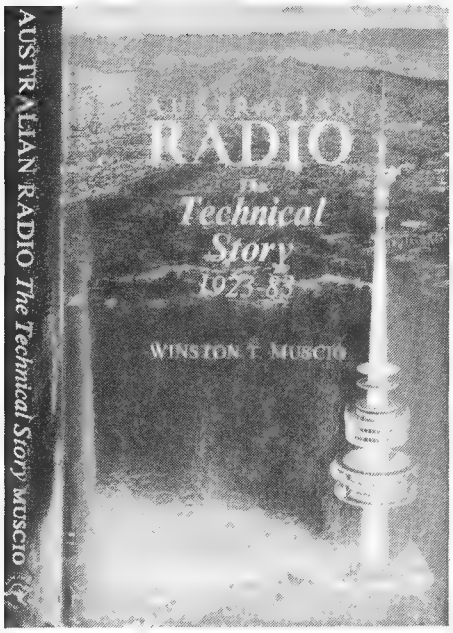
The protocol most Australian Packeteers have settled for is the V2 protocol. We have standardised on this same protocol as the Canadians who invented Packet Radio. It should be pointed out that protocols are NOT based on the circuitry, but on the programmes which run it, so if protocols should ever need to be changed, this is a blessedly simple thing to do. The radios most used are IC22s because of the fast turnaround time from transmit to receive. The baud rate will be 1200 initially.

AR

BOOK REVIEW

Jim Linton VK3PC
4 Ansett Cresent, Forest Hill, Vic. 3121

AUSTRALIAN RADIO — THE TECHNICAL STORY 1923-83



As its title suggests, this publication sets out to be the first to give a detailed account of the fascinating technical developments which have occurred in Australia over the past 60 years.

The book describes in detail, the development of broadcasting transmitters and receivers, then goes on to cover other interesting technical advances in many other branches of radio.

Some areas covered include the Beam Wireless Telegraph Service through to modern high speed data transmissions, and mobile radio, starting with the earliest Victorian Police Wireless Patrol to the microprocessor-controlled Telecom services.

Some other aspects documented are the evolution of telephone systems, sound record playing equipment from electric pickup to digitally-recorded compact discs, the development of audio frequency amplifiers and loudspeakers, and the chequered history of FM broadcasting.

This excellent publication was written by Winston Thomas Muscio, a chartered engineer, who retired in 1980 after a lifetime in radio engineering starting with STC in the design and manufacture of radio receivers for domestic, commercial and military use.

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CLEAR ACROSS AUSTRALIA

The book covers Australian telecommunications from when the first telegraph line was erected between Melbourne and Williamstown in 1854.

It is written in an entertaining style and is excellently illustrated.

Most stages of telecommunications appear to have been covered, from the post, to telegraph, telephone, wireless telegraphy, picturegrams, radio, telex, co-axial cable, satellites and optic fibre cables.

The human contribution to telecommunication development in Australia is well covered and research from archival material is obvious in the early sections of the book.

The author, Ann Moyal, where possible had interviews with many of the former administrators and staff in the PMG and Telecom, and several Ministers who held the portfolio.

AR

Share your story in AR ...

AMSAT AUSTRALIA

Colin Hurst VK5HI
8 Arndell Road, Salisbury Park, SA 5109

NATIONAL CO-ORDINATOR
Graham Ratcliff VK5AGR

INFORMATION NETS

AMSAT AUSTRALIA
Control: VK5AGR
Amateur Checkin: 0945 UTC Sunday
Bulletin Commences: 1000 UTC
Winter: 3.685 MHz Summer: 7.064 MHz

AMSAT PACIFIC
Control: JA1ANG
1100 UTC Sunday
14.305 MHz

AMSAT SW PACIFIC
2200 UTC Saturday
21.280/28.878 MHz

Participating stations and listeners are able to obtain basic orbital data including Keplerian elements from the AMSAT Australia net. This information is also included in some WIA Divisional Broadcasts

ACKNOWLEDGEMENTS

Contributions this month are from Bob VK3ZBB and UoSAT Bulletin Number 135.

AMSAT-AUSTRALIA NEWSLETTER

Graham VK5AGR the National Co-Ordinator of AMSAT-Australia is now producing a monthly newsletter containing updated satellite news, orbital predictions, keplerian data and operating hints and techniques. The objective of the newsletter is to keep the amateur populous informed on the latest information available and to realise funds for the funding of projects or the purchase of an item (items) of hardware for a future amateur satellite project, eg. Phase-3C, Phase 4 or whatever. The cost of the Newsletter is $15 and cheques made payable to WIA (SA Division) should be forwarded to Graham VK5AGR QTHR.

COMPUTER SOFTWARE

As mentioned previously in this column there are a dearth of satellite programmes available for the mumerous home computing systems currently in use by satellite communicators. Those newcomers not aware of what is available should drop a line to Graham VK5AGR (QTHR) the AMSAT-Australia National Co-ordinator, enclosing a stamped self-addressed envelope requesting details of what is available and from whom it is available.

Past practice has been that, provided the requestor supplied the media (tape or disk) and return pack and postage, the copies of the relevant software has been provided WITHOUT charge. The majority of persons availing themselves of this service have been most appreciative, however it is disturbing to hear that some individuals have had the audacity to write back and complain bitterly that the software was not up to their expectations. To that inconsiderate minority may I address the following comments . . . . The AMSAT-Australia software service is being provided by a group of fellow amateurs to assist YOU as a fellow satellite communicator. Next time think twice about knocking a gratis service.

UoSAT-OSCAR-9 Bulletin-135 19 July 1985 (Excerpts)

PHASE-3C

The Phase IIIC spacecraft is now scheduled for launch less than 11 months hence — Mid-June 86 is ESA's schedule on the Ariane 4 launcher. Four transponders will be aboard: B, JL, L Rudak (digital) and S.

AMSAT is about to sign a contract with the Solar Energy Research Institute, SERI, in Golden Colorado for a facility in which to integrate Phase IIIC. A strong team is now functioning in the Boulder area under W3GEY. The Phase IIIC spaceframe recently arrived in Boulder having been shipped from W4PUJ in Washington.

JAS-1 SPACECRAFT

The JAS-1 launch has slipped 6 months until August 86.

RS SOVIET SPACECRAFT

After the recent scare, RS-8 seems to have returned to normal operation. It may have recovered or it may be a last gasp. Better watch this spacecraft closely for signs.

Rumors in Europe say the birth of ISKRA-3 is near. Prior ISKRAs, built by the Moscow Aviation Institute, were manually launched by ejection out the hatch of a Salyut space station. Sources indicate a 15 to 10 metre narrowband transponder is likely. RS-9 and RS-10 are due for launch late this year or early next year.

AMSAT-OSCAR-10 SPACECRAFT

The 2 metre omni antenna is on from MA 35 to MA 80 for a trial period. Comments on reception would be appreciated. An attitude manoeuvre is taking place at the moment. The target attitude is LON 230, LAT -10 degrees. This will require 6 to 7 days at least of magnetorquing. The change is taking place now as it will be difficult to check the S/C attitude when the sun gets too close to the orbital plane. (ZL1AOX)

AO-10 spacecraft controllers have determined an operating schedule for the critical eclipse period which begins in August, as follows:

Off 030 — 189
L 190 — 206
B 207 — 029

UoSAT-OSCAR-11 OPERATIONS

UO-11 dropped out of gravity lock last week during some attitude experiments but was recaptured by OBC auto-magnetorquing routines on Wednesday. Work has been under way on up-grading the P/Wave and CCD experiment OBC software and was used for the first time on Wednesday and Thursday P/Wave surveys — the results are being analysed.

AR

MISSING PERSON??

Would anyone who knows the present whereabouts of Tom King VK2ATJ please phone the VK2 Divisional Office on (02) 689 2417, during office hours.

SATELLITE ACTIVITY FOR PERIOD APRIL 29 TO MAY 30 1985.

1 LAUNCHES.

Number	Name	Nation	Date of Launch	Period mins	Initial Data Apog km	Perig km	Incln deg	Remarks
1985								
034A	STS 51B	USA	Apr 29	91.6	358	345	57.0	See below
034B	NUSAT 1	USA	Apr 29	91.5	354	345	57.0	
035A	GSTAR 1	ESA	May 8	634.5	36027	201	7.0	Ariene vehicle
035B	Telecom 1B	ESA	May 8	634.5	35960	201	6.9	Ariene vehicle
036A	Cosmos 1649	USSR	May 15	92.3	415	356	72.8	
037A	Cosmos 1650	USSR	May 17	675.6	19142	19110	64.8	
037B	Cosmos 1651	USSR	May 17	675.3	19132	19104	64.8	
037C	Cosmos 1652	USSR	May 17	675 8	19145	19119	64.8	
038A	Cosmos 1653	USSR	May 22					
039A	Cosmos 1654	USSR	May 23					
040A	Molniya 3 24	USSR	May 29					
041A	Cosmos 1655	USSR	May 30					

2. RETURNS.

During the period twentyfour objects decayed including the following satellites:

1976 026A	Molniya 1 34
1985 029A	Cosmos 1645
1985 032A	Cosmos 1648
1985 036A	Cosmos 1649

3. NOTES

The crew of 'Challenger' on STS 51 B mission were R.Overmeyer, F.Gregory, D.Lind, N.Thagart, W.Thornton, L.Vandenberg and T.Wang.

On 14 May 1985 at 2113 UTC , satellite ATS 1 was located at 162 91°E. Inclination 11 728 .

OSCAR-10 APOGEES
SEPT/OCT 1985

DAY #	ORBIT #	APOGEE U.T.C HHMM:SS	SATELLITE CO-ORDINATES LAT DEG	LON DEG	BEAM HEADINGS SYDNEY AZ DEG	SYDNEY EL DEG	ADELAIDE AZ DEG	ADELAIDE EL DEG	PERTH AZ DEG	PERTH EL DEG
1st September										
244	1670	1254:28	-17	194	41	65	61	55	84	35
2nd September										
245	1672	1213:29	-17	185	58	58	71	47	89	27
3rd September										
246	1674	1132:31	-17	175	69	50	79	39	94	18
4th September										
247	1676	1051:32	-17	166	77	42	85	30	99	10
5th September										
248	1678	1010:33	-17	157	84	33	91	22	104	2
248	1679	2150:03	-17	332					256	2
6th September										
249	1680	0929:35	-17	147	90	25	96	14		
249	1681	2109:04	-17	323					261	10
7th September										
250	1682	0848:36	-17	138	95	17	101	6		
250	1683	2028:06	-18	313			254	-0	265	18
8th September										
251	1684	0807:37	-18	129	100	9	106	-1		
251	1685	1947:07	-18	304			259	7	270	27
9th September										
252	1686	0726:38	-18	119	105	1				
252	1687	1906:08	-18	295	257	4	264	15	275	35
10th September										
253	1689	1825:10	-18	285	262	12	269	23	281	44
11th September										
254	1691	1744:12	-18	276	267	20	275	32	289	53
12th September										
255	1693	1703:13	-18	266	272	29	281	40	300	61
13th September										
256	1695	1622:13	-18	257	278	37	289	48	317	69
14th September										
257	1697	1541:16	-18	248	285	46	299	56	346	73
15th September										
258	1699	1501:43	-18	238	293	54	313	64	22	73
16th September										
259	1701	1420:45	-18	229	306	62	335	69	48	67
17th September										
260	1703	1339:45	-18	220	325	68	6	71	64	60
18th September										
261	1705	1258:48	-18	210	354	72	34	68	74	51
19th September										
262	1707	1217:48	-19	201	26	70	54	62	82	43
20th September										
263	1709	1136:50	-19	192	49	65	66	54	87	34
21st September										
264	1711	1055:50	-19	182	64	57	76	46	92	25
22nd September										
265	1713	1014:53	-19	173	74	49	83	37	97	17
23rd September										
266	1715	0933:53	19	163	81	40	89	29	102	7
266	1716	2113:24	-19	339					251	-3
24th September										
267	1717	0852:55	-19	154	87	32	94	21	106	1
267	1718	2032:27	-19	329					256	5
25th September										
268	1719	0811:55	-19	145	93	24	99	13		
268	1720	1951:27	-19	320					260	13
26th September										
269	1721	0730:58	-19	135	98	15	104	5		
269	1722	1910:29	-19	311			254	3	265	21
27th September										
270	1723	0651:25	-19	126	102	8	109	-2		
270	1724	1830:56	-19	301	252	-0	259	10	269	30
28th September										
271	1725	0610:28	-19	117	107	0				
271	1726	1749:59	-19	292	257	7	264	18	274	39
29th September										
272	1728	1708:59	-19	283	262	15	269	26	280	47
30th September										
273	1730	1628:01	-19	273	267	23	274	35	288	56
1st October										
274	1732	1547:01	-20	264	272	32	281	43	300	65
2nd October										
275	1734	1506:04	-20	255	277	40	289	52	320	72
3rd October										
276	1736	1425:04	-20	245	284	49	299	60	355	75
4th October										
277	1738	1344:06	-20	236	294	57	316	67	33	73
5th October										
278	1740	1303:06	-20	226	307	65	342	72	57	67
6th October										
279	1742	1222:09	-20	217	330	71	16	72	70	58
7th October										
280	1744	1141:09	-20	206	4	74	43	68	79	50
8th October										
281	1746	1101:38	20	198	36	71	60	61	85	41
9th October										
282	1748	1020:38	-20	189	52	64	71	53	91	32
10th October										
283	1750	0939:41	-20	180	70	56	80	44	95	24
11th October										
284	1752	0858:41	-20	170	78	48	86	36	100	15
12th October										
285	1754	0817:43	20	161	85	37	92	28	104	7
285	1755	1957:15	20	336					251	0
13th October										
286	1756	0736:43	-20	152	91	30	97	19	109	-0
286	1757	1916:15	-20	327					256	8
14th October										
287	1758	0655:46	-21	142	96	22	102	12		
287	1759	1835:17	-21	318			250	-2	260	16

MAGAZINE REVIEW

Roy Hartkopf, VK3AOH
34 Toolangi Road, Alphington, Vic 3078

G General, C Constructional, P Practical without detailed constructional information T Theoretical, N Of particular interest to the Novice X Computer programme

HAM RADIO...June 1985 Ceramic resonator oscillators (P N) High stability BFO (P N) IF sweep generator (P N) VIC 20 Morse code generator (X)

SHORT WAVE MAGAZINE...May 1985 QRP 20 metre transceiver (C)

PRACTICAL WIRELESS...April 1985 Advanced direct conversion receiver (C)

CQ...May 1985 Dummy load antennas (G) 1984 CW contest (G)

RADIO COMMUNICATION...July 1985 Diamond Jubilee edition. Solid state SSB transceiver for 1.8MHz (C)

73 MAGAZINE...July 1985 Radio astronomy (G) Inductance meter (P)

CQ-TV...No 130...Spring issue 1985 Single chip colour encoder (P) Sync separator, genlock unit, vision mixing, etc. General ATV news and information.

AR

A news release

The Sixth Conference of the IARU Region 3 Association is being held in Auckland, New Zealand, from 13 to 17 November 1985 with the New Zealand Association of Radio Transmitters (NZART) as host society.

To mark the occasion, New Zealand radio amateurs have approval to use the prefix ZM from 1 October to 31 December inclusive.

A special station ZM6ARU will operate from the conference venue in the period 9 to 18 November.

Special approval has been given for IARU representatives and delegates to the conference to receive call signs from the special series ZL0ZAA for hand-held transceiver use during their visit to New Zealand.

IARU REGION 3 CONFERENCE AWARD

To publicise the IARU Region 3 Association Conference in Auckland, New Zealand, 13-17 November 1985 and is available world-wide to licensed amateurs for contacts made during November 1985 with ZM6ARU (Conference station) and other ZM stations.

Any band or mode may be used.

For overseas stations: Contact ZM6ARU and two other ZM stations. Note: Five other ZM stations may be substituted for ZM6ARU.

The Award is available to SWLs.

Send log details (no QSLs) and $1 (3 IRCS) for surface mail or $2 airmail to : NZART Awards Manager ZL2GX, 152 Lytton Road, Gisborne, New Zealand.

AR

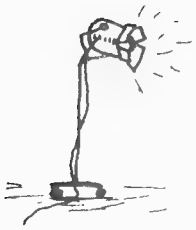
RADIO CLUB DE CHILE INTERNATIONAL BULLETIN

The RCCH International Bulletin transmits every Saturday, in English and Spanish, on 40 metres, 7.085 MHz at 1000 UTC. This transmission is directed to the Pacific area.

Other transmissions to Europe are on 21.300 MHz at 1700UTC and to America on 14.200 MHz at 2300 UTC.

The call sign used is CE3AA in Santiago, Chile.

AR



SPOTLIGHT ON SWLing

Robin Harwood, VK7RH
5 Helen Street, Launceston, Tas 7250

Well, Spring has hopefully arrived by now. About this time of the year, the major international broadcasting stations make their alterations to their frequencies to take account of the seasonal fluctuations in propagations. The S-85 period commences on 1st September from 0100UTC.

As well, most of Continental Europe goes off daylight saving on Sunday 29th September. This is significant because many programmes targeted for European audiences are slotted in local time in Europe and not in UTC, as is the case for other target areas. So there are going to be some changes noted on 29th September. While we are on Standard Times, I have noted that Soviet external services run on the Standard Time in Moscow, and you will note that programming will be one hour later, as from 1st October.

MONITORING THE WOODPECKER

Next month I shall be participating in a sustained monitoring effort on the 'Woodpecker'. This pulse signal has been well known to amateurs and SWLs for many years by causing severe disruption to telecommunication users. Now the American SWL Group - the Association of North American Radio Clubs (ANARC), has decided to co-ordinate the collection and analysis of data on the effects of this PON mode activity which is, unfortunately increasing.

The results of these studies will be presented to the telecommunications departments and/or ministries throughout the world, in order that a protocol statement can be drafted at the next WARC, in 1987, condemning this interference.

The monitors in Canada and the USA will monitor parts of the spectrum between 5 and 23MHz, with each monitor being assigned a 3MHz wide spectrum to scan over a 3 hour period, allocated by ANARC. The majority of the pulse rates are 10 per second, although rates of 7.5 and 17 per second have also been noted. The rate can be determined by measuring the width of the pulse signal. Eg 40kHz or 75kHz. As the 'Woodpecker' pulses seemingly gravitate in 100kHz steps, it can be easily mapped out on graphics and displayed.

CO-ORDINATORS CO-ORDINATING

Also, the committee has asked monitors to note instances where international broadcasters have been interfered with by PON pulses. Here in Australia, our Intruder Watch Co-ordinators will be co-ordinating the work of various monitors within the spectrum assigned to them by the ANARC OTHR Committee. This is not surprising as IW has noted the effects of the OTHR pulses within the exclusive amateur allocations, ever since they appeared.

CONSIDERABLE DEBATE

It is interesting to note further, that the US Air Force expects to commence operations from OTHR radar in Maine, very shortly. It is licenced to operate within the Fixed Allocations, but excludes amateur, maritime and broadcasting allocations. There has been considerable debate within American defence circles over the effectiveness of OTH radar systems. Some maintain that the Strategic Defence Initiative, commonly referred to as 'Star Wars', would be more effective, from economic and efficiency standpoints. As the SDI proposal will be probably very costly and expensive, there could be pressures to implement further OTHR sites. Already there have been suggestions that further sites, located on the American West Coast, Alaska and the Midwest could be constructed. However, the US congress is not all that keen on further costly expenditure on defence systems, wishing to trim the ever increasing US budget deficit.

OTHERS INTO OTHR

Also according to the ANARC OTHR committee, it appears as if the UK will also be experimenting with OTHR from Crickslade, near Swindon. This is also, in co-operation with the US defence scientists. Another site at Ordfordness, which has has past involvement with OTHR research in the early 70s, could be considered and would reportedly cover shipping and air movements in the Baltic and Arctic, north of the UK.

Japan is also reportedly interested in joining the OTHR club. Time will alone tell if more countries will use PON, yet it is quite clear that they will have to rapidly devise ways of minimising severe disruption to other telecommunications users/consumers.

IMPROVED SIGNALS!!

Radio HCJB in Quito, Ecuador recently completed the erection of their 49 metre antenna array, to improve their signals to Europe and the South Pacific, coupled with their 500kW transmitter. This has certainly improved the stations' audibility and signal strength on the South Pacific service on 6.130MHz from 0700UTC. Unfortunately, their transmissions on 9.745 and 11.925MHz remain useless because they are frequently drowned out by SE Asian stations, such as R Pyongyang or jammers.

LACK OF SHORT-HAUL

Recently I have been unable to maintain scheds with local stations on 80 metres because of the lack of short-haul propagation. This certainly is very unusual, as well as being very frustrating to all concerned. Now we know the reason why - the Polar Absorbtion Effect. Apparently, protons bombard the ionosphere around the Polar regions, causing the disappearance of the D layer for several hours. It is also often in tandem with a solar flare, as was the case on 9th July. Interestingly enough, it allows signals to come in on channels that are usually dominated by local stations. The RA senders were inaudible on 49 metres, allowing Asian stations to be rarely heard.

Well, that's all for September. Until next time, the very best of DXing and 73....Robin VK7RH.

AR

MEGAWATTS IN THE WIND

Electricity produced from the wind could be contributing significantly to power requirements in Victoria during the early 1990s.

This is the view of Bruce Tregaskis, an engineer in the State Electricity Commission, System Planning Department.

Fifty sites along the Victorian coast has been assessed — and ten of these were selected for the installation of wind monitoring equipment.

The recording of wind speed, direction and duration began in February and will continue for two years.

Mr Tregaskis said after the data had been analysed the SEC would be in good position to know the potential of wind generation.

Preliminary indications are that wind energy could be expected to contribute about two to three megawatts to the Victorian grid by the early 1990s.

This could need 20 or 30 generators with a capacity of about 100 kilowatts. Mr Tregaskis said in the long term wind generation was unlikely to contribute more than five to ten percent of the state's power requirement.

A 55 kilowatt aerogenerator was installed two years ago by the Mars confectionary company at Ballarat.

The SEC planned to install a 75 kilowatt version this year near Geelong.

(Source: SEC News, June 1985) AR

INTRUDER WATCH

Bill Martin, VK2COP
FEDERAL INTRUDER WATCH CO-ORDINATOR
33 Somerville Road, Hornsby Heights, NSW 2077

A good supply of intruder reports were received for the month of May from:

VK2BQS, VK2DEJ, VK2DUO, VK2EYI, VK2PS, VK2QL, G H A Bradford, VK3BGH, VK4AFO, VK4AHO, VK4AKX, VK4BG, VK4BHJ, VK4NUN, VK5BJF, VK5TL and VK7RH.

Many thanks to these people for their continued support of the Intruder Watch.

HARMONIC STILL HEARD

The fourth harmonic of Radio 5AN, Adelaide continues to be heard on 3.564MHz. I would be interested to hear from more VK5 amateurs on this one. VRQ from Vietnam continues to trangress on 14.080MHz on CW. UMS is still being heard on 14.141MHz, but seems to have changed his habits somewhat, as he is using more FSK Morse than formerly. RJS has also been heard on this frequency, so call signs must be listened for, as they are necessary for identification purposes.

In the August Intruder Watch column, I mentioned that there was AMTOR traffic emanating from a large vessel, at the time located in the Marshall Islands, the point being that the traffic was of a commercial nature. Recently, someone blew the ship up, and she sank at her moorings. I want to make it quite clear that the Intruder Watch had nothing to do with it.

STATISTICS

Statistics for May are as follows: 350 Broadcast intruders reported, 82 CW intruders, 76 RTTY intruders, 57 other modes and 67 stations identified.

Col VK4AKX sends the following notes. Radio Tirana (Albania) continues to be the number one pest on 7MHz during our afternoons, from 0400 to 0700UTC. 99.9 percent of intruders are located in the Northern Hemisphere. Col makes a valid point, in that he says that the intruders Radio Tirana, Indonesia, Radio Peking, Voice of the Straits (China), etc are so strong, that even if they are NOT heard in some states, the result is that those states could NOT work on or near the frequencies in question because, no doubt the offenders are being heard in other parts of the globe, and as radio communication is a two-way affair, the stations at the other end would be QRMed out of the game. So it works both ways...

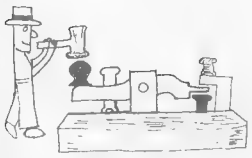
Even if we, in VK, can't hear an intruder station, it is an equally effective intrusion if it is heard elsewhere, because one end of the communication path is interfered with. So it is important that radio amateurs world-wide take part in the Intruder Watch programme, in order that we can take steps to censure the offending stations from both ends. Please report any intruders heard to your divisional Intruder Watch Co-ordinator.

73 for now, and see you next month.

AR

MAGPUBS

Please note that the UHF Communications magazine (English version) is being produced for 1985, and the first issues were sent at the end of July 1985.



POUNDING BRASS

Marshall Emm, VK5FN
GPO Box 389, Adelaide, SA 5001

INTRUDERS

In the May issue of this column I referred to a comment regarding the "60 day rule" by Norman VK4BHJ. Several operators have written in the meantime and the subject bears re-opening. We all have a lot at stake here (not just us brass pounders), and we would do well to remember the motto of the CIA — "Eternal Vigilance is the Price of Freedom."

First of all, my thanks to Bill Martin VK2COP, Federal Intruder Watch (IWS) Co-ordinator, who wrote to explain the 60 day rule —

AN ADMINISTRATION CAN ASSIGN ANY OF ITS STATIONS TO OPERATE ON ANY FREQUENCY AND, IF NO-ONE OBJECTS WITHIN 60 DAYS, THE STATION CAN OPERATE LEGITIMATELY ON THAT FREQUENCY.

Bill goes on to say, "This is one of the reasons why the Intruder Watch is constantly calling for reports of intruders, so that the objections may be lodged as quickly as possible. In the case of the USSR intruder "UMS" this does not apply, as objections have been lodged for years against this intruder. The Intruder Watch has recently mounted an intensive campaign against this intruder, with the result that the USSR HAS ACKNOWLEDGED that it is one of their stations, and has stated in writing to the Department of Communications that 'they will take steps to have the stations removed from the amateur allocations of 15 and 20 metres.' "

The moral of the story, obviously, is that the Intruder Watch Service is effective — but only so long as it has the support of the amateurs it is designed to protect. They need accurate, timely and **reliable** reports of harmful interference; without the reports they can do nothing. Addresses of state co-ordinators are listed frequently in "Amateur Radio." Drop yours a line and he will supply you with intruder logging sheets and some good advice.

On the subject of Japanese and Taiwanese fishing boats, their operation on 80 metres is legal so long as they are in international waters. If they are in Australian territorial waters they are intruders, and action can be taken.

If you have reason to believe that such an intruder is in fact within Australian territorial waters, you should log the interference and report it to the Intruder Watch. David Brownsey VK4AFA, the Brisbane Secretary of the IWS has been very persistent in documenting such intrusions and has written to the Japanese Consulate-General, and the Department of Communications. He advises that the Australian Coastal Surveillance Centre can be telephoned in Canberra on (062) 47 6666, which is a free STD call (they will accept reverse-charge trunk calls).

David mentions another instance on 80 metres, fascimile transmissions on about 3.625MHz, emanating from the USSR. Unfortunately these are legal, because their orgin is in a different region. However, **any** broadcast stations, harmonics from Australian commercial broadcast stations, and transmissions from cordless telephones are intruders and should be reported to the IWS.

Norman VK4BHJ has also foreshadowed another form of intruder problem looming on (or over) the horizon — frequency-hopping stations. These stations use the latest in digital communications technology to break up transmissions into segments which are transmitted on different frequencies. A station can "hop" all over the HF spectrum, spending only milliseconds on a particular frequency. The effect is only apparent as a rise in the overall background noise, which is bound to get worse as commercial and service transmitters are seeking and using any relatively clear HF channels regardless of other users. This situation does not appear to be covered by current international regulations.

Finally, a word of caution — it is extremely unwise to deliberately "QRM" an intruder. In the first place, you are violating regulations if you transmit anything which is not a legitimate amateur pursuit. Secondly, you are only adding to the pollution of the airways. Bear in mind that you are not the judge and jury. For all you know those fishing boats are in international waters, in which case deliberate QRM is harmful interference to a legitimate (unfortunate though it be) user. Futhermore, the level of their signal in your location is no indication of your ability to cause QRM at theirs. You might be making 10-20 kHz unusable in your own neighborhood while the "intruder" can't even hear you. The best practice is to log the details and report them to the IWS, and otherwise **ignore** them.

On a lighter subject, we have another entrant for the un-offical, un-sponsored and no-prize-but-self-esteem competition to find the world's biggest key. Craig ZL3TLB, editor of "Break-in" the offical journal

of the NZART, has sent the accompanying photo of a key which was built for the 1983 VHF convention by Tony ZL3DQ. Morse operators at the convention were invited to try it out, but they were unaware that the oscillator was controlled by a remote VHF system. The 1kHz tone could be changed to a harsh "raspberry" and the tones could be delayed by half a second, which threw even the best brass pounders. The photo shows David ZL2SX "having a go."

In thinking about the "rules" for this "competition," I have had to decide that there are no rules. It's difficult enough to determine what constitutes a key, without worrying about terms like "biggest."

Any other takers??

73 till next month.

MURPHY MARCHES

Mr Murphy, at a late hour, got amongst Ron VK3OM's typewriter keys — and magically got the IC-735 and 745 mixed up in last month's Equipment Review. Still marching, he attributed the review to Ron VK3AFW, who, upon reading the magazine, found that it was the best, easiest and quickest review he had ever written.

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WICEN NEWS

VICTORIA'S DISPLAN OFFICER RETIRES

Many changes have occurred in the area of counter-disaster planning in Victoria since the Ash Wednesday tragedy in 1983.

One man who has played a key role was Bruce Bingham, who recently retired from the position of Displan Officer after four years.

His retirement was the result of him being promoted to rank of Chief Inspector, meaning he had to move to the next phase of his police career.

He said it had been very difficult to get others interested in disaster planning before Ash Wednesday, and there was general apathy within the police department, government and the public itself.

"When Ash Wednesday occurred people realised there was something in counter disaster planning.

"My job became very satisfying after that, and although no longer Displan Officer I still maintain an interest in that particular field," said Mr Bingham.

Commenting on WICEN, he said he knew of its potential from the time of its involvement in the Cyclone Tracy disaster, 1974.

By not being used in emergency situations interest in WICEN had dwindled over the years, said Mr Bingham.

"But since Ash Wednesday it's a very viable and important communication resource.

"That has been indicated by the number of times WICEN has been used since Ash Wednesday.

"The WICEN organisation is going to play a valuable role in Victoria in the future," he said.

With any type of disaster situation the normal emergency services "can't cope with everything and need help particularly from an organisation like WICEN that has "this communication expertise."

WICEN coordinator, Derek McNiel VK3BYA said he was very thankful for Mr Bingham who had helped bring WICEN on from where it was at Ash Wednesday.

"He helped WICEN win recognition within the police department and other emergency services.

"For example he instructed the police regional Displan coordinators to make contact with the WICEN regional coordinators and involve them in local disaster planning," said Derek.

WICEN wishes Chief Inspector Bingham all the best for the future, and looks forward to a continued close relationship with his successor, Inspector John Park.

WESTERN ZONE WICEN ACTIVITIES
Regions 4,5 & 17

After organising a training school in Hamilton earlier this year, in which Derek McNiel was the instructor, the WICEN group were keen to put their newly acquired knowledge into practice. They did not have long to wait to do so.

An off-chance comment to a member of the Hamilton Light Car Club saw an invitation forthcoming for the WICEN group to provide communications for their Yulunga all-night-car-trial during the evening of 13th April to the small hours of the 14th.

The invitation was duly accepted and the afternoon of the 13th saw Ken VK3KAV, co-ordinator, Lyle VK3DWL, controller and their group setting up stations in the Annya State Forrest and the immediate hinterland.

The trial officials were, at first, a little slow to make use of the communications facilities, however, as the event continued, the messages continued to increase, speeding up the search for lost cars, directing the recovery teams and passing safety messages and scores.

The event concluded with an early morning barbeque breakfast, where the competitors, officials and WICEN group got to know more of one another.

A weary WICEN group got to bed at a time when normal people were getting up but all agreed they would be willing to participate again next time.

Thanks go to Lyle, for his ability to supply maps, etc for the event and for his efforts as control station.

At this time, Region 17 WICEN do not have any active members. If you live in this region and would like to participate, call Ken VK3KAV, QTHR and he would be pleased to answer any queries.

Contributed by Ken Taylor VK3KAV

ALARA

Australian Ladies Amateur Radio Association

Poppy Bradshaw VK6YF
203 The Strand, Bedford, WA. 6052

I have been asked to be guest writer for the ALARA column this month, an honour I assure you as my journalistic abilities are very limited. Firstly I would like to thank Margaret VK3DML for her excellent efforts as Publicity Officer and Contest Manager and for her on air friendship and assistance.

Here in VK6 it is not practicable for our members to take a position on the executive committee because of distance, time difference and of course on-air conditions. We are always grateful to those members who fill these positions each year and for relays and QSPs passed on by other members in regard to ALARA and its members.

Locally our members are very active in WIA and local club committees. Diane VK6KYL has been re-elected secretary of the Goldfields Radio Club.

Bev VK6DE, who some of you may have met in her travels over east, is very active in the Geraldton Radio Group. Bev also does their segment for the VK6 WIA News. Gill VK6YL is secretary of the WARG and with Christine VK6ZLZ is a VK6 WIA Councillor. Christine is the WIA Book saleswoman and like Sue VK6NSU is a very active repeater group member. Trish VK6QL although fairly new to AR encourages and tutors others to join the amateur radio ranks.

Our first VK6 ALARA function was to celebrate ALARA's tenth birthday. Nine members went to lunch at the Westrail restaurant and Christine VK6ZLZ baked a delicious cake for the occasion. A week later our Radio Ladies Luncheon group held their sixth birthday at the Sheraton Hotel with 13 in attendance. These luncheons are held on the last Thursday of each month and any lady interested in radio, YL, XYL, mother or daughter of an amateur, etc is welcome. Visiting ALARA members from VK2, Canada, USA and visitors from NZ and UK have attended luncheons. I would like to take this opportunity to extend an invitation to any visitor to our beautiful state to join us.

Thank you to the new ALARA executive committee for carrying on the tradition of ALARA. Thank you for giving me this opportunity to take part in our tenth anniversary celebrations.

33
Poppy VK6YF

AR

EDUCATION NOTES

Brenda Edmonds, VK3KT
FEDERAL EDUCATION OFFICER
56 Baden Powell Drive, Frankston, Vic 3199

Statistics for the May exams have been received and are available from me or the Executive Office on request.

As usual, CW sending results are better than receiving, and the pass rate for the Regulations exam overall was 80 percent.

The main interest, however, lies in the results of the Theory exams at both levels as hereunder.

State	AOCP		Novice	
	Pass rate %	Cand#	Pass rate%	Cand#
VK1	12.5	8	20	5
VK2	38.4	99	45.2	62
VK3	46.2	156	47.8	90
VK4	25.3	91	21.5	65
VK5/8	29.8	47	43.9	41
VK6	16.7	54	27.3	33
VK7	57.1	14	44.4	9
Total	**VK 35.2**	**469**	**38.4**	**305**

Of course, the figures for the states with smaller numbers of entrants cannot be used for any statistical analysis, but overall the results are better than those for the February exams, although they are not as good as in May 1984.

I have not received information about which papers were used in each centre, but expect so fairly soon. I have also been promised information on distribution of past exams, to complete some analyses over a longer period. Now that we have had a year of four exams at each level, it may be possible to work out if the change in exam availability has affected the pass rates. The change has been appreciated by many candidates and has made things easier for those organising classes.

The number sitting for the May exams was significantly down on that for May last year, but was up on the February figures. What I do not know is how many of those sitting were attempting both levels on the one day. I would be interested to know if class instructors are encouraging students to attempt both levels at once, or if any candidates have been debarred from attempting both by the examiners arrangements.

It will be interesting to see the effect of the proposed new scale of fees on the number of entrants, and particularly on the large group of students who enter but do not turn up for the exam.

A small group of volunteers is working on producing a Study Guide to accompany the revised syllabus when it is published. Drafts of sections are being circulated as they become available, so that we can collect opinions from members who are actively involved in any classes. Any reader who is interested in assisting with this work is welcome to contact me (QTHR Call Book or any Melbourne Phone book)____I will assume that a request for a copy of the draft means that the requestor is prepared to give it serious thought and provide written comments back to the group. I would be most pleased to receive notes from members on any non-standard reference material which they have found useful, as we would like to include references with each section.

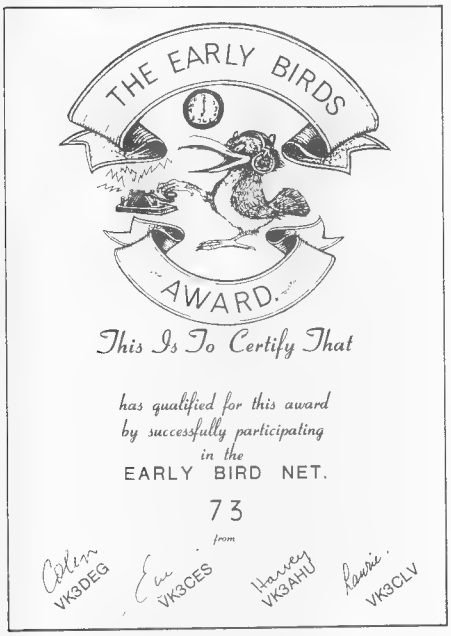
Several instructors have sent me copies of notes on sections, sets of questions, or ideas for demonstrations. These are much appreciated. I hope eventually to be able to establish a system of circulating ideas. This was what I had in mind for the Education Net (Thursdays 1130 UTC about 3.680 MHz), but the net does not draw much response. Why not drop in some evening?

73 Brenda VK3KT

AR

AWARDS

Joe Ackerman, VK4AIX
5 Koomooloo Court, Mermaid Waters, Qld 4218



THE EARLY BIRD AWARD

This award has been organised by a group of four amateurs who at present are conducting a CW practise net each morning, Sundays excepted, at 2100 UTC on 3.547 MHz.

The purpose of the net is to provide encouragement and CW instruction at 10 WPM to assist Novices and Limited Call holders in their sending and receiving and to prepare them for the DOC examination.

It was considered that an award would be appropriate for those interested enough to take part in the net on a regular basis. To qualify the amateur must have participated in the net on 20 occasions and must also have reached an acceptable standard of sending and receiving. A short test passage will be transmitted at regular intervals.

Applications for the Award together with submission of the un-corrected test passage, a claim log and $1 should be sent to VK3DEG, QTHR.

Contributed by Eric Smith VK3CES

IPSWICH RADIO CLUB GOLDEN JUBILEE AWARD

To celebrate its Golden Jubilee in 1985, the Ipswich Radio Club, in the UK in association with the Ipswich Borough Council and Arrow Electronics, will present a special Award Certificate signed by the President of the Club and the Mayor of Ipswich for contacts made during 1985 with Ipswich Club Members and Stations in the County of Suffolk. The rules are:—

Only contacts made during 1985 will count for the Award. The Award will be presented for 50 points, 25 of which must be for Suffolk and Ipswich Radio Club contacts. Contact with a G station will count 1 point, with a Suffolk station 2 points and with an Ipswich Radio Club Member 3 points. Each contact with the Club Station (G4IRC, G1IRC, or GB2IRC) will count as 5 points. Several special event stations using these call signs will be on the air during 1985.

Contact may be on any amateur band by any mode of transmission. The same station may count for contacts on more than one band, but only once on each band irrespective of mode. Terrestrial repeater contacts will not count for the award. If applicants so wish, Certificates will be endorsed for a single band and/or a single mode.

Contacts on bands above 1296MHz will count as double.

Applications for the Award, enclosing a list of contacts confirmed by a Club Chairman or Secretary or by a representative of a National Society (QSL cards are not required and should not be sent with the application) should be forwarded with six IRCs (or 1 pound or $2) to Alan Owen G4HMF, 102 Constable Road, Ipswich, IP4 2XA, before the 31st March 1986.

SWLs may also apply for the Award by supplying a similar list of QSOs heard between the appropriate G stations and others in their own country.

Contributed by Alan Owen G4HMF Chairman, Ipswich Radio Club.

Trivial Questions . . . ?

Q: Name the radio amateur who went mobile marine on Lake Eyre in 1975,76,77 — you see his name each month.

A: *Bill Rice VK3ABP, used a trailer-sailer on the normally dry Lake Eyre during its rare but periodic filling of water.*

Q: Who immortalised "The Radio Ham" by his TV portrayal and comedy record.

A: *The late Tony Hancock on his comedy show "Hancock's Half Hour". The comedy sketch is also known for its phrase "It is are not raining here in Tokyo".*

Q: In relation to amateur radio, what is special about Vietnam and Kampuchea.

A: *The governments of these countries do not permit amateur radio.*

Q: If you had an Australian callsign with /T after the suffix what did it mean.

A: *The /T used to signify your station had a permit to transmit television.*

Q: What did the letters ARTL stand for.

A: *ARTL stood for the Australian Radio Transmitters League which was formed after the WIA and later amalgamated with the Institute.*

Q: Name the four types of signals used by radio amateurs to transmit pictures.

A: *Pictures are transmitted by ATV, SSTV, FAX and RTTY.*

Q: Who was the man who announced the general availability of Third Party Traffic privileges for Australian radio amateurs.

A: *In his opening address to the RD Contest, August 1980, the then Minister, A A Staley, announced TPT privileges would be available.*

Q: Which amateur bands did the 122 set transceive on.

A: *This WW2 disposals set had a frequency range of about 2 to 8 MHz and was used on 80 and 40*

Q: What is a "BCL".

A: *The letters BCL stood for Broadcast Listener.*

Q: If you had a "split stator" it would be-

A: *A split stator is a type of variable tuning capacitor arrangement with two capacitors on the one shaft.*

Q: What or who are Leonids, Lyrids and Perseids.

A: *Meteor showers, which occur in November, April and August respectively.*

Nostalgia

STATION WITH A FUTURE!!!

Simplicity and efficiency were the slogan of the amateur transmitting station of the Federal Secretary of the WIA, B J Masters 3LM, in 1925.

Mr Masters discarded all panels and had his set laid out on a board and secured to the wall. It used a Philips Z3 in a modified Colpitt's circuit. High tension was supplied from a home-made transformer capable of delivering 3000 volts, with filaments supplied from another home-made transformer.

The receiver was a (Schnell) using a Marconi V24 as detector with 26 volts on the plate.

From The Listener In-14th November 1925

CLUB CORNER

DEVIL NEWS FROM THE NW BRANCH

At the last meeting Noel Davies VK7EG was welcomed back from South Africa and Ray MacNamara was a welcome guest.

The club now has a new rig, which is working well, so it is hoped many more stations will be worked on activities nights now.

One correction to previous notes is that the club has applied for an all mode repeater on 70cm, not that it is "an all mode repeater".

During a recent activity night much work was done on the RTTY terminal and with the help of Andrew VK7ZAP's VZ200 and portable TV, we were able to put it to air and had a very enjoyable contact with a VK3 station. It is hoped to have the RTTY broadcast operating at 1000UTC shortly, using the call sign VK7NW. It is also hoped to have a special club QSL card soon.

Thanks are extended to Rob VK7KAB and the family of the late Max Upston VK7NMU for the donation of many radio magazines to the club, from Max's estate.

It was good to see so many volunteer to man VK7NW during the RD Contest and make this a successful club exercise.

Club member Jack VK7WJ has been away for six weeks on the mainland. We all hope he has a good holiday.

Contributed by Max Hardstaff VK7KY.

LOWER EYRE PENINSULA ARC

The Lower Eyre Peninsula ARC was formed in late 1978 and over the past years has doubled in membership. Early meetings were held in members homes but with the formation of the local SES we were able to use a room in their building. We helped them erect towers for joint use and obtained our first equipment with the help of the local Lion's club.

Within a few years the SES operation became much bigger than expected and we were asked to find alternative accommodation. The local Council offered the use of land adjacent to the SES Compound and offered a loan of $1,000 to help establish our facility. We were fortunate in obtaining a Caboose for the Radio Shack and two dis-used Guards Vans for a Workshop and Storeroom.

We also "acquired" a shed — provided that we shift it from its site! In March '85 the concrete slab for the floor was laid and Easter Monday found all hands on deck to erect the "New" building. This structure has now been lined and the ceiling has been installed together with an overwhelming number of power points. This room was unofficially opened at the June meeting.

During late 1984 it was decided that, as a club, we should consider a special project for 1985, the joint celebrations of the WIA and International Youth Year. After discussion with some interested students, their schools were asked if they would like to have amateur radio as an Elective choice for 1985. Naturally we were almost killed in the rush but decided to limit the groups to 10 per class. The end result was two groups of Year 10 students at Port Lincoln High and one group of Year 9 students at St Joseph's Convent.

Term 1 was pretty solid with Video Tapes, Lectures and on air sessions during the 11 week course. Term 2 has seen workshop sessions and recognising testing and sorting components. They have also started on a construction project in two parts.

Part 1. A Two Valve Reaction Radio Receiver. Suitable for listening to Broadcast and SW Bands up to 30MHz.

Part 2. Novice Valve Transmitter. CW and AM. To be assembled as a supplement of Part 1.

A prototype to receive 80 and 40 m bands has been constructed and, although lacking in AGC, was able to resolve all signals heard on a FRG7 receiver for those bands. Students will also take part in the forthcoming contests as second ops.

Term 3 will be more Theory and after the exams in November the high spot of the year — a DXPEDITION to a nearby off-shore island. Equipment to be used will include the Rig built by the students and an early model rig built by Alf Treager. Other equipment will also be used to fill out band coverage and thus ensure plenty of contacts. The venue and dates still have to be confirmed as we are experiencing quite a number of problems. These are not new to anyone who has tried to organise a similar venture.

We have the support of the South Australian Division of the WIA and have applied to the Department of Communication for a special call sign. In between all this radio activity the students are trying to come up with a suitable QSL card and T-shirt design.

So listen out over the next few months — you may hear some of our prospective amateurs calling CQ CQ CQ VK5ALE VK5ALE VK5ALE.

Photographs courtesy the Port Lincoln Times and photographer D Freeman

Contributed by Carol McKenzie VK5PWA.

From left — Paul Bascombe and Shane Phillips sorting resistors in the store room. Paul is a club member and Shane is a student at Port Lincoln High School.

From left — Robert Matulic and Damian Chambers brushing up on their soldering techniques. Both are in the St Joseph's Elective Group.

Warrnambool Amateur Radio Club

The extent to which some amateurs will go to further their experience of their hobby is ridiculous; and none more so than some of the members of the Warrnambool Amateur Radio Club, in particular Russell VK3ZQB. The Club was asked by the Port Fairy hospital whether we could supply support communications for a project they were planning. Apparently they had found another individual fanatical about his chosen hobby, in this case cycling. As a fund raising event for the hospital this cyclist, Graham Woodrup, was going to attempt the seven day distance record for a solo cyclist, a record of some 46 years standing. He planned to ride back and forth between Port Fairy and Melbourne a total of five times over the seven days and break the present record of 2680 kms.

"That shouldn't be too hard" we said to ourselves. Russell, who by the way is a lot more cautious about what he lets himself in for now, said that since he lived in Port Fairy he would be able to man the base station and provide the link to the ride co-ordinators. Terrific, now all we needed were five operators who could each make one trip to Melbourne and back. Well that wasn't as easy as it first sounded since most of the event was occurring during the working week, and each trip took 30 to 35 hours. The ride was starting at 1400 on Sunday June 9th and finishing at 1400 on Sunday June 16th. One week prior to the ride we had three of the trips covered with mobile operators. By the Wednesday before the event we had four operators and negotiations were continuing to provide an operator for the vacant spot, trip number four.

On the Friday and Saturday (7th and 8th) our man in Port Fairy, Russell, installed our 2mt and 80mt equipment into one of the support vehicles, which happened to be a van owned by the local Member of Parliament that he had converted into a mobile office. So our mobile station was very well appointed with table, chair and a great heap of spare bike frames and wheels to stretch out on when we needed a kip. Russell also installed a PA system on this vehicle and UHF CBs in all four support vehicles. Very happy to help out are these Port Fairy people.

Well the clock chimed 1400 on Sunday and we were away; well at least Harry VK3XI was. This young fellow Harry (82 years young) was to be our guinea pig. The link between mobile operator and base was to be established on the Warrnambool repeater, and when out of its range we would use 80mts. After passing through Warrnambool on this first trip Harry and Russell thought they should try the 80mt system to make sure all was in order. Enter one Mr. Murphy. The mobile 80mt rig which functioned perfectly prior to the event now produced considerable audio distortion on transmit. Luckily Harry had a spare HF rig; but it was of course in his car back in Warrnambool. So Ray VK3BOH chased up the convoy, obtained car keys from Harry and headed back to Harry's car to extract the rig. Then back on the road again to catch the rider by this time at Terang.

After all this it turned out that only the microphone was at fault, so it was swapped. The Warrnambool repearter is not up on Mt. Warrnambool yet, so it only covered to just the other side of Terang. So back onto HF again. Problem number 2; noise from the SEC power lines along much of the highway between Terang and Geelong made HF impossible for the mobile operators. Formal messages were only being exchanged every two hours, so communications vehicle would have to leave the convoy and head off the highway a kilometre or so before contact could be successfully established. Andrew VK3VDE helped Russell with the HF contacts, and when he was unavailable other local full calls provided relays.

Despite the fact that the rider, and therefore the team as well, only had about three hours sleep each night, Harry was in high spirits so during spare time and breaks in power line noise he made many contacts on HF to other VK's and ZL's. The rider was due back at Port Fairy about 1900 Monday evening. Monday afternoon we received a message that our second operator, Bill VK3XE who was to take over that night, had flown to Port Pirie for the weekend and had been weathered in and wouldn't be back that day. In fact he didn't make it back until Wednesday. None of the other operators were able to do this next shift, and remember that negotiations were still in progress for an operator for trip four. Small panic! After some desperate talking the negotiatee of the fourth trip agreed to take over this now vacant second trip, in the hope that Bill would do the fourth trip if he ever returned from VK5. So Fred VK3KFL joined the team just out of Warrnambool at about 2200 on Monday night. Another major crisis averted.

This second trip was to be the worst as far as the rider was concerned. Strong head winds, bitter cold and driving rain cut his schedule to ribbons. This caused problems for Fred also as he had to be back home Tuesday night for a sleep in order to drive back to Melbourne early Wednesday morning for a meeting. The rider was most definitely not going to be home that night. Another small panic. Remember that young 82 year old Harry, well he jumped in and said he'd finish the shift for Fred. So Ray (VK3BOH) again played taxi and ferried Harry down to Winchelsea Tuesday night and brought Fred home. Harry and the team made it back to Warrnambool about lunch time Wednesday. Harry felt he knew that little stretch of road between Warrnambool and Melbourne, having travelled most of it three times at 25 K.P.H.

The rider turned again at Port Fairy to start the third trip mid afternoon on Wednesday and our operator for this trip was Digger VK3BFF. I'm not sure whether it was his calming influence but things went unusually well on this trip. By this stage it had been found that the recently modified Ballarat repeater was usable along the highway from Terang (edge of Warrnambool repeater range) right through into Melbourne. With the help of an 80 watt amplifier Russell was able to access Ballarat almost all the time. This relieved the reliance on HF. The users of the Ballarat repeater were very courteous and were many times heard to QSY to leave the repeater free for the bike ride.

By the time Digger and the team arrived home again, at 1630 Thursday evening, Bill (VK3XE) had got the wind out of his feathers sufficiently to take on the fourth trip. Again this trip went remarkably smoothly. Because the rider was several hours behind schedule due to weather encountered on trip two, this fourth trip was shortened by turning for home at Geelong instead of Melbourne. This of course shortened his proposed distance but would still allow him to just break the record if he got back to Port Fairy for the fifth time by 1400 Sunday.

Yours truly, Colin VK3DRF, was booked for the fifth and final trip, initially timed to start at 2300 on Friday night. But even with the short fourth trip the rider was behind this time. In fact he was not yet home when I went to bed at about 2200 Friday night, and it was planned that the rider would rest at Port Fairy before commencing the last trip. I set the alarm clock for 3 a.m. Now I know what you're thinking, but it did in fact wake me as programmed. I reached out from under the blankets and grabbed the 2mt hand-held; a quiet call to Russell so as not to wake the XYL, and there he was as he had been all week, the microphone almost permanently grafted to the palm of his hand by this stage. The news was that they planned to leave Port Fairy at 0500, being in Warrnambool at 0600. So I programmed the clock for 5am and went back to sleep. A quick call to Russell when I got up at 0500 confirmed that the rider was about to leave. Radio operators were picked up in Warrnambool each time; UHF provided communications between Russell and the vehicles while on route from Port Fairy to Warrnambool. So I manned the mobile station for the final, desperate trip at 0615 Saturday morning.

For the whole of this trip the rider, Graham, was battling against time in order to be back home by 1400 the next day. He would also have to ride right to Melbourne in order to cover the required distance. As luck would have it he had a reasonable tail wind all day and made good time with no major problems. Communications were also good, with the occasional relay by other amateurs when Russell couldn't quite access the Ballarat repeater. By the time Graham turned for home at Melbourne, the wind had moderated a little and he was only facing a light breeze. It was 1900 Saturday evening and a long night ahead. Long indeed, we did not take a major stop until reaching Camperdown at 0500 Sunday morning. We slept, and I mean slept, until 0730 when we had a quick cuppa and hit the trail again. Calculating ahead it appeared that if we could keep Murphy (hallowed be his name) at bay we should make Port Fairy a little before 1400. When we reached there Graham would have exceeded the record by a margin of 4km. Tight schedule!

The closer we got to Port Fairy the more people we passed on the side of the road who were there to cheer Graham on. This public support lifted his spirits, and even though he could hardly sit on the saddle, his posterior being somewhat tender, he lifted his speed considerably. We passed through Warrnambool at 1210 and made the Port Fairy post office at 1300. He had broken the record but still had to ride for the last hour to complete the seven days. So he completed two circuits along back roads around Port Fairy to notch up a further 30 kms before his triumphant finish at 1400. The record attempt had been successful and had also raised a large amount of money for a new wing at the Port Fairy hospital.

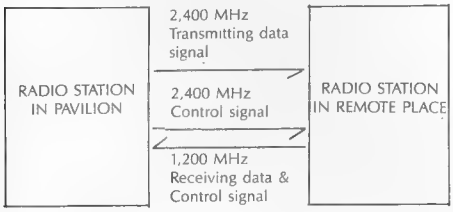
The club had also made a significant achievement. We had provided experienced operators and radio equipment, including the repeater systems, free of charge at very short notice. Despite the difficulties we had faced with the length of the event, the schedule changes and our personnel being held hostage in VK5, we had provided an invaluable communications link for the organisers and travelling team. For the entire week we left the team without communications for a total of only thirty minutes. Much of this achievement was due to the efforts of Russell VK3ZQB who was contactable nearly 24 hours a day for the entire week. He was later honoured by the Port Fairy hospital board by being presented with a life governership of the new wing. This honour is also shared by the Warrnambool club and indeed by amateur radio at large.

Contributed by Colin Magilton VK3DRF
AR

TSUKUBA EXPO '85

OUTLINE OF COMMEMORATIVE AMATEUR RADIO STATION 8J1XPO

For the first time in amateur radio communication, this system was designed to control an HF transceiver TS-940 from a remote place equipped also with TS-940. The Control Station transmits an analog signal for transmitting data and a control signal, both on the 2,400 MHz band. The Main Station transmits a 1,200 MHz analog signal for receiving data and a control signal whenever needed.



CONTROL STATION MAIN STATION

Contributed by Alan Elliott VK3AL

Alan VK3AL checks out the station 8J1XPO at Expo '85 in June.

FORWARD BIAS

VK1 DIVISION

Ken Ray
PO Box 710, Woden, ACT 2606

NEXT MEETINGS

The remaining meetings for 1985 are:
23rd September Power Supplies
28th October Packet Radio (to be confirmed)
25th November End of Year Social

Meetings are in the Griffin Centre, Civic, and doors open around 7.30 to 7.45, with the meeting starting at 8.00 pm. The bookstall and QSL bureau are available at the meeting.

VK1 AWARD

An update on the VK1 Award from the Award manager, Phil VK1PJ, listing those who have gained the award this year (to July 1985):

Call	Cerificate Number	
JA1EF	*147*	
VK2PZC	*148*	
VK1GB	*149*	*+ Gold upgrade*
VK4VAT	*150*	*+ Bronze upgrade*
VK3PXC	*151*	*+ Bronze upgrade*
VK2ERJ	*152*	*+ Gold upgrade*
VK2JBM	*153*	
VK2PKT	*154*	
VK3DYL	*155*	
VK2PZW	*156*	
VK7DS	*157*	
VK3YH	*158*	*+ Bronze upgrage*
VK1NDK		*Gold upgrade*
VK3KJI		*Silver upgrade*

For those looking for VK1 stations, the VK1 award net is run each Sunday evening on 3.570 (+/- QRM) MHz, after the VK1 Divisional broadcast, around 1030 UTC. Phil would particularly welcome those VK1 stations that rarely (or never) join the net to come up.

UHF REPEATER

The VK1 UHF repeater has been moved to a new site, on Isaacs Ridge, on the south side of Canberra. Further testing is taking place prior to its final installation on Mount Ginini.

MEMBERSHIP REPORT

As at the end of May, membership stands at 219. This is comprised of 184 full members, 9 country, 12 associate, 3 pensioner, 5 student, 3 family and 3 life members. During the 6 months January to June 1985, the Division welcomed 14 new members:-

JL Vardanega, JE Chapman, WD Fallow, RW Walker, ES Chan, DA Card, CJ Wylkes, T Van Andel, H Daniell, NGC Sutton, C Young, A Craig, HPA Van Roy, CR Bollard.

Additionally, a small number of new members have come into the ACT and have transferred to the VK1 Division. Unfortunately, the new computer system does not show up these transfers as they arrive.

That note was from Richard Jenkins VK1UE, the VK1 Divisional Secretary.

AR

VK3 WIA NOTES

VICTORIA 150

VIC DIV COUNCIL

Portfolios decided upon at the May, 85 Council Meeting were Alt. Fed. Councillor Des Clarke VK3DES. V.T.A.C. Co-ordinator Peter Mill VK3ZPP. Public Relations Officer Jim Linton VK3PC. A.R. Liason Bill Wilson VK3DXE. Inwards QSL Bureau Barbara Grey VK3BYK. Outwards QSL Bureau Des Clarke VK3DES. Library & Historical John Adcock VK3ACA. Classes Organiser John Adcock VK3ACA. Intruder Watch Steve Philips VK3JY. Book Officer Barry Wilton VK3XV. Office Secretary Maxine Conheady. Education Officer Fred Swainston VK3DAC. Minute Secretary Margaret Wilson.

REPEATERS

The new site for VK3RGL at Mt. Anakie has taken more than 2 years of negotiation with various Government authorities and is now being finalised. This is a combined effort by Vic. Div. and The Geelong Amateur Radio Club and will mean a new permanent site and a rebuild of VK3RGL. Vic. Div. Council and V.T.A.C. have been engaged in a programme of upgrading existing repeaters, and the construction and installation of a number of new ones.

R.T.T.Y. FIXER'S GROUP

This group under the direction of Fred Mc CONNEL VK3BOU has been engaged in rebuilding Seimens M100 teleprinters for use by interested amateurs for some considerable time, and offer instruction on rebuilding and or repair of these units. If you are interested in joining this group then contact the divisional rooms for further details.

A warm welcome is extended to these new members of the Victorian Division.

J C Beverin VK3KAM, Rohan Bushell, Gary Carroll VK3NCG, Michael Davies, Kenton Dean NK6F, James Ferrier VK3MC, Arthur Forecast VK3AM, Mario Gallucci VK3PBB, Biron Hardinge.

J E Hunt VK3DSC, Martin Luby, Ian McDonald VK3AXH, Robert Marshall VK3DSS, W F Massey, Raymond Meany VK3HA, Frederick Messemaker, Bill Nicholls VK3WX, Hendrik Pillekers VK3CAQ.

Robert Quick, Noel Sinbeck VK3ANS, Neil Shrowder VK3KFJ, Craig Terry VK3XLI, Jos Weemaes, VK3DJO, R R Watts, Vincent Whittam, Robert Wilson and Donald Wood. AR

VK4 WIA NOTES

Bud Pounsett VK4QY
Box 638, GPO, Brisbane, Qld. 4001.

A WORLD FIRST FOR QUEENSLAND

For some several years, the South East Queensland Teletype Group have been running a weekly news broadcast. This has been on the group's 2 metre repeater, VK4RBT, each Monday evening at 1000UTC. When possible the broadcast has been made on HF, first on 40 metres and then on 80 metres. Until recently, the HF broadcast was heard at irregular intervals.

Early this year, Rob Green VK4KUG took over as the groups news co-ordinator and station manager. Rob has brought a fresh approach to the RTTY broadcast. He has changed the format considerably. The news now covers international, national and local items and runs usually for some 40-45 minutes. The number of stations calling back after the news has reached an unprecedented high, proving the popularity of this weekly bulletin. Through the Queensland Division's news editor, Rob is able to select suitable items from the WIA news sources, as well as from other avenues. Often the VK4WIA Sunday Morning Broadcast contains items from VK4TTY news sources, so there is a two way flow of information.

Several members of the very progressive South East Queensland ATV Group were copying the RTTY news and their president, Arnold Youngberg VK4SU, approached Rob with a brilliant suggestion. – What about printing up the RTTY news on the ATV Groups' Vision Repeater, VK4RTV on UHF, channel 34? – Rob quickly gave his consent and so each Monday evening at 8pm, up comes the bulletin on channel 34.

The result was quite spectacular, not only were local amateurs watching it, but many others also. So much so that the ATV Group were inundated with requests for details of antennas and pre-amplifiers for better pictures. Tom Ivins VK4ABA, the groups' secretary, even had to re-write the antenna construction details in layman's language for the non-amateurs including girls from one of Brisbane's private schools.

Here in Queensland, we are claiming a world first in amateur radio, RTTY news printed up on UHF amateur television regularly, each week. VK4TTY news is now on VK4RBT, 3.630kHz and UHF channel 34, Monday, 1000UTC.

SBS, ATV AND ALL THAT

SBS television has come to Queensland, at least to Brisbane. It is transmitted from Mt Coot-tha from the ABQ2 site. Its arrival was not without drama and some gnashing of teeth amongst the ATV fraternity. The SEQ ATV Groups' repeater, VK4RTV, was operating in beacon mode to assist amateurs who had built the groups' down converters at the same time as SBS had a test transmission going on channel 28. The problem was that antenna installers were aligning UHF TV antennas on VK4RTV instead of the SBS signal.

Whilst VK4RTV had vision identification, there was none on the SBS transmission. SBS were using a test card and caption scanner from the ABC at the channel 2 site.

The crunch, for the ATV Group, came on 25th June, when a message from DOC, Canberra, ordered VK4RTV off the air. In relaying the instruction from Canberra, the Brisbane DOC office was most courteous and sympathetic and, for their part, the ATV Group complied without hesitation.

After SBS were established and programming began, the repeater was allowed back on the air. It has shown the tenuous hold that we have on the temporary allocation of 576-585MHz. The footnote in the Australian Table of Frequency Allocations (AUS30) states, "The band 576-585MHz is also allocated to the amateur service until such time as the band is required for use by the broadcasting service".

AR□

FIVE-EIGHTH WAVE

Jennifer Warrington, VK5ANW
59 Albert Street, Clarence Gardens, SA 5039

One of the biggest costs in our annual budget is the Journal but, whenever members complain of rising costs in the form of membership fees and it is suggested that one way to cut these costs would be to do without our bi-monthly Journal, a great wail of protest goes up. South Australia has had its own Journal for so long that most of us couldn't envisage the Division without it. But we give you fair warning here and now — you may have to!!

This year has not been an easy one for Bill Wardrop VK5AWM as Journal Editor. First our printer went out of business and there was the problem of finding another one. Recently Bill has had to give up personal study commitments in order to spend more time on the Journal and has advised Council that he will have to give up the position as Journal Editor at the end of 1985. So, we are now looking for a replacement for Bill, as Journal Editor, preferably one with a computer, but it's not mandatory! Please let us (Council) know if you are interested.

However, our Journal problems do not end with the Editor! Some months back it was decided, because of a lack of volunteer help, to have the Journal collated by the Printer, this once again comes out of your pockets! At the last Journal "collation" night (the journals still have to be put into envelopes along with ESC/Publications order forms, and address labels stuck on) only FOUR volunteers turned up! Along with myself and Bill, were Joy VK5YJ and John VK5NX. Now I don't doubt that there were some people who had legitimate excuses, but what happened to the rest of you? I have heard people say that they don't go because it goes on so late — of course it runs late if you only get four volunteers! I realise that there are many country members who can't help in this respect but I'm sure that Bill or John Butler, our technical Editor would be delighted to receive articles from you. We can all do something — with apologies to John F Kennedy — Ask not what your Division can do for you, ask what you can do for YOUR DIVISION.

Finally, a happy and a sad note for two VK5s who do work hard for all of us. To Steve VK5AIM our deepest sympathies on the death of his wife Chris, and to Eric VK5LP our congratulations on being awarded the Medal of the Order of Australia, for Services to the Community.

DIARY DATES

Tuesday 24th September Display of members equipment, with both the ICS AWARD, and the MILLAR AWARD being donated, for the best overall piece of equipment and the most improved/best newcomer, respectively. Several ESC Vouchers will also be awarded, so bring along that homebrew gear and make it an interesting evening for all.

AR

QSP

FLINDERS ISLAND DXPEDITION

The Lower Eyre Peninsula Amateur Radio Club (LEPARC), noted for its very impressive Matthew Flinders Award, is proposing to make a substantial DXpedition to Flinders Island. This is NOT the large island at the eastern end of Bass Strait, but a sizeable island about 30 km off-shore from Elliston on the west coast of Eyre Peninsula.

The operation will involve up to 60 people, mainly students of the Club's very successful Novice certificate course which has been run in conjunction with the Port Lincoln secondary schools. They will be ferried to and from the island in three or four groups over the period 22 November to 1 December 1985, so that all may enjoy for a few days a unique "Wild Australia" experience very appropriate to International Youth Year.

Supervision of the whole expedition, including the amateur operating, will be the responsibility of LEPARC, which has been planning the activity since early this year. It is expected that the special call sign VI5IYY will be used, marking both International Youth Year and the WIA 75th Anniversary.

VK3ABP. Information from VK5PWA.

READ MACHINE

The State Library of New South Wales has become Australia's first library to own a reading machine for used by the visually handicapped.

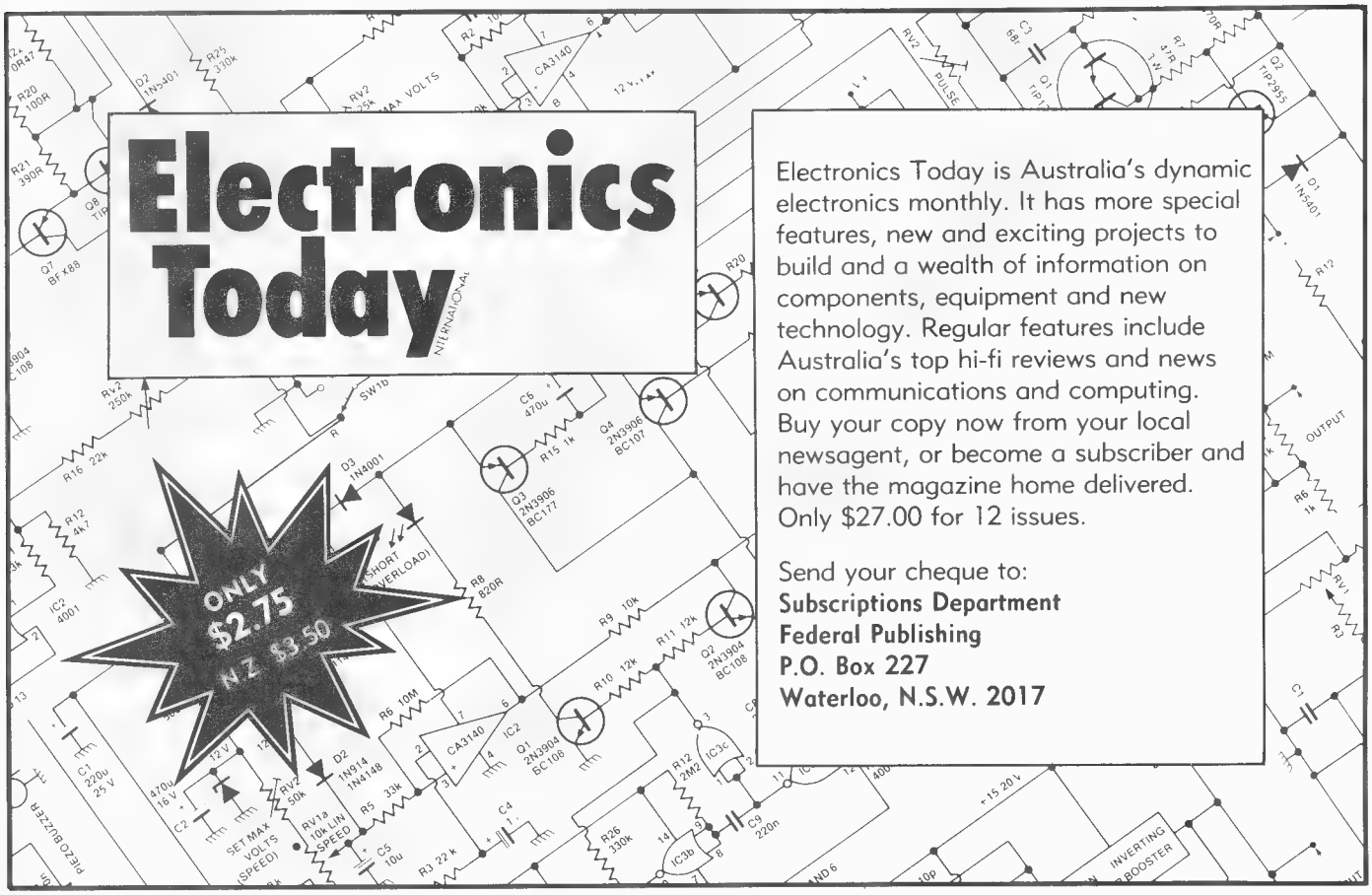
The Kurzweil machine, which cost $51,000, was said to be the most advanced system in the world which automatically read print materials aloud in a synthesised voice.

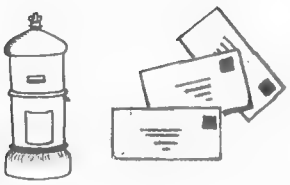
Contributed by Jim Linton VK3PC.

AR

THE ONLY EXERCISE SOME PEOPLE GET IS:

* Jumping to conculusions
* Side-stepping responsibility
* Running down friends, and
* Hopping on the bandwagon





OVER TO YOU!

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

GREAT QUALITY!

The 75th Anniversary Calendar (for the whole year) is really great.

What about putting such a calendar into Amateur Radio every year? What do other members think?

Also AR is excellent. Keep up the great quality.

Best wishes

Norm Melford VK3ZTN,
Old Coonara Road,
Olinda, Vic. 3788 AR

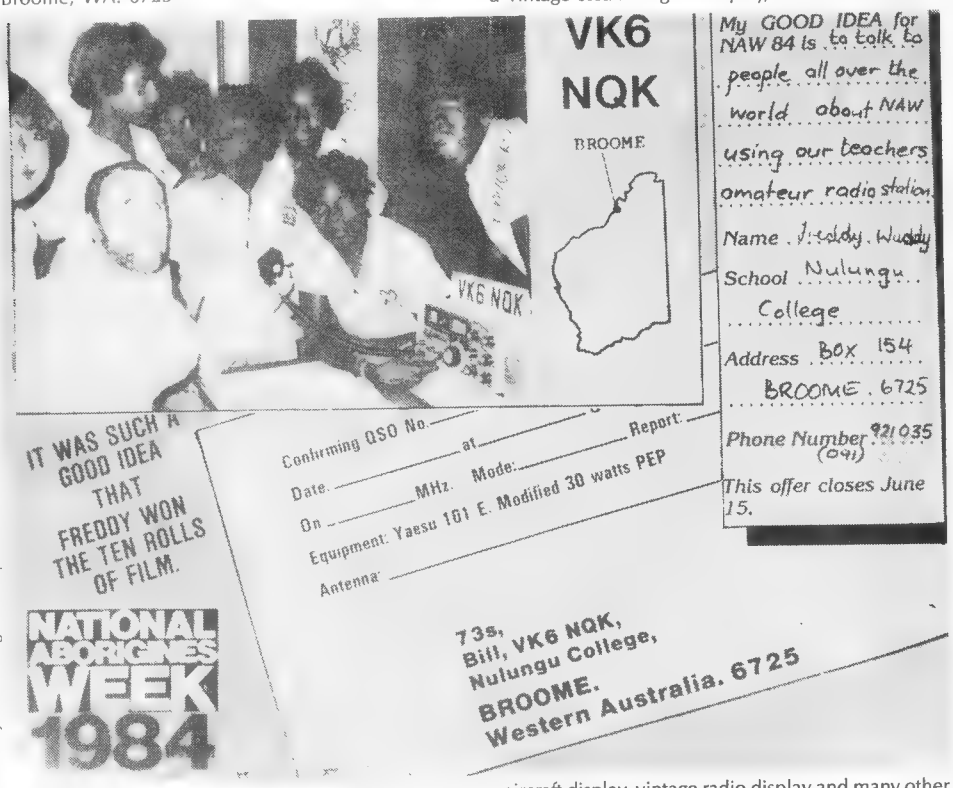
NATIONAL ABORIGINES WEEK

For the past three years our students have celebrated National Aborigines Week by helping me run my station for that week. Many contacts were made and the resulting exchange of names and other information promoted a great feeling of camaraderie.

Many thanks to all amateurs who took part and who have spoken to our students on other occasions.

Sad to say, when NAW is celebrated in September, I will be in Rome so there will be no amateur radio exercise as part of our activities — unless the Holy Father lets me loose with Vatican Radio!

Yours sincerely,
Br Bill Marchant VK6NQK,
Nulungu College,
Box 154,
Broome, WA. 6725



From Djawal-Idi Magazine -September 1984.

HAPPY 75ER!!

It is with much pleasure, I acknowledge receiving your presentation clock.

It has taken pride of place in the "shack".

Once again I thank you for your generosity. It has added a bit more enthusiasm to learning that confounded CW!

Yours gratefully,
J C Kemp L50129,
Box 578,
Millicent, SA. 5280

COME ALONG!!!

During the weekend of 26th and 27th October, the Wagga Amateur Radio Club are to hold an Amateur Radio Convention and Hamfest. This will be a continuance of the long tradition of conventions and hamfests reaching back to the origins of amateur radio in the Riverina area.

A new dimension to this years convention will be the inclusion of the inaugural Australian National Fox Hunting Championships. The purpose of the championship is to find the Australian champion fox and hidden transmitter hunter.

In addition to the National Championships, the convention will also conduct hunts for the beginner and more professional hunters in the local hunts. Parts of both the national and the local hunts shall be televised back to the convention site by the local ATV repeater. The local surrounds of Wagga provide a magnificent backdrop to the running of both events.

Many trade displayers will be descending on Wagga Wagga for the weekend. This will provide an excellent venue for the perusal of the most recent technological releases into the amateur radio field. Of course, all displayers will be looking to lighten the load on the return trip so bargains are sure to be the order of the day. And of course, there will be the trading tables, where someone's 'junk' is anothers goldmine.

There are many displays to be featured including a vintage steam engine display, remote controlled aircraft display, vintage radio display and many other exciting activities.

Accommodation in Wagga Wagga is first class. There will also be accommodation available at the actual convention site. To ensure your reservation, contact the Wagga ARC, Post Office Box 294, Wagga Wagga, NSW. 2650. Phone: (069) 26 1532.

Yours faithfully,
Peter Clee VK2KZZ,
Publicity Officer,
Wagga ARC,
Box 294,
Wagga Wagga, NSW. 2650.

FURTHER TO....

Consequent to my interest in statistics, the article 'Editor's Comment' page 3, AR July 1985, absorbed my attention for some time. As an experiment, I extended on Bill's figures, with a conversion to (real terms), reproduced below. Figures are approximate and are rounded off.

COMPARATIVE WORK EFFORT REQUIRED TO PURCHASE AR MAGAZINE

YEAR	APPROX TIME WORKED FOR ONE ISSUE IN MINUTES	APPROX TIME WORKED FOR ONE PAGE
1945	11.5	35 sec
1949	15.5	47 sec
1953	16.5	54 sec
1985	8.0	9 sec

Thus we see that AR magazine has never been better value than today. Pundits of socio-econo maths will produce variations to my figures, but they will still be comparative, with minimal influence on the results.

Bill suggests the present price of AR is about $1.00 per issue, from members subscriptions — even at $2.00, it would be the best value ever.

So Bill, your comment is valid — "Can you afford not to belong to the WIA?"

De
Reg Glanville VK2ELG,
63 Buffalo Cresent,
Thurgoona, Vic. 2640.

AMATEUR SPIRIT ALIVE AND WELL

Service to the community is part of the Amateur Code of Conduct, especially during natural disasters and emergencies. Recently I noticed an example of co-operation with the public, which should not go unnoticed by our readers.

Apparently, communication between Australia and Antarctica is difficult for VK0 operators due to the local circumstances and the many other duties they have to attend to. Also, there is a very heavy demand on the official telephone link with the main land.

I gathered that much from a very interesting QSO between VK0AJ and Stan VK3DSW, who had two members of a previous antarctic expedition with him in the shack, who were busy exchanging scientific data with VK0AJ.

The radio link was professionally conducted and maintained by Stan VK3DSW, for almost three hours, during which conditions changed, QRM had to be kept to a minimum, and equipment monitored.

Perhaps this is not a rare occurrence, except that Stan is handicapped and TPI from war service in New Guinea.

Ted Struys VK3DGC,
10 Dolphin Street,
Mt Eliza, Vic. 3930

SPIRIT OF AMATEUR RADIO

I wish to draw attention to an action by VK3CJT recently, which I consider worthy of approval and appreciation as being in the real spirit of amateur radio. We hear often with dismay about deliberate interference, bad language, unwarranted criticism on the amateur bands and it is pleasing to observe the other side of the coin!

The Early Birds Net offers Morse code practice each day and each evening at 10 and 15 WPM VK3s DEG, AHU and CLV are those I have heard in this service and I feel that the format of this net is excellent for Novices wishing to upgrade and Full Calls wishing to improve above the DOC level.

On the occasion under discussion the participants were delighted to hear that VK3VJT had passed the 10 WPM DOC test and congratulations flew thick and fast. Then VK3CJT came on and offered to relinquish his call sign so that 3VJT could apply for it now that he had upgraded. I consider this to be a very generous gesture and a complete contrast to other activities which occur from time to time. Long may this type of co-operation and kindness continue in the amateur radio fraternity. Sincere commendations to VK3CJT. May you have a long career on our bands. I know that with a kindly attitude like that you will surely make MANY friends.

Yours faithfully, Rex C Black VK2YA
562 Kooringal Road,
Wagga Wagga, NSW, 2650

TRUE SPIRIT OF AMATEUR RADIO

I would like to compliment Doug McArthur VK3UM and his group for their VHF achievements described in July Amateur Radio. I have followed VHF activities, somewhat inactively at times, since 1950 and have attended VHF group meetings from that time up until their demise a few years ago. I learned that, of all the inter capital paths, the Melbourne to Sydney path was probably the most difficult, being too mountainous for tropospheric enhancment modes and too short for sporadic E.

Tropospheric scatter was always a possibility. Not only was this mode used but a new mode of propogation has been pioneered. This type of activity is in the true spirit of the amateur radio experimenter and is therefore worthy of all encouragement. Even the effort involved in constructing the equipment is considerable and is the type of effort that results in worthwhile discoveries.

There are two questions that spring to mind from this exercise. When and by whom was tropospheric scatter first utilised between Melbourne and Sydney and, not wishing to detract from the achievement of the group, has Aircraft Enhancment of VHF/UHF signals been described previously for propogation over considerable distances? If it has not been previously described then the achievement of the group is remarkable.

Yours faithfully, J A Adcock VK3ACA,
12 Albert Street,
Oak Park, Vic. 3046

CORRESPONDENT WANTED

Recently I received a letter from Arnold Feldman WB3DAO, holder of a General Class Licence, and resident of Maryland, USA.

Arnold is keen to correspond with any Australian amateurs, SWLs or prospective amateurs, to learn more about our way of life and establish new friendships.

He is interested in stamp collecting and would be happy to exchange photos, post cards and bumper stickers.

His address is PO Box 700, Jessup, MD, 20794, USA.

Best 73,
Kevin Moore VK3ASM,
17 Haddon Court,
Mitcham, Vic. 3132.

LOCATION OF GEOSTATIONARY SATELLITES

The May 1985 issue of AR carried an excellent article on the location of geostationary satellites using a Commodore 64 home computer. Due to Murphy's Law, the accompanying "programme" had to be reproduced in the June 1985 issue. I have not tested the programme as I have a Microbee computer and have no reason to question its accuracy. I base the following comments on the assumption that the satellite position maps published each month in the US magazine Satellite World (formerly Satellite Orbit International) are accurate. I have also assumed that Degrees West greater than 180W can be expressed as Degrees East by subtracting from 360.

My first query is about the present status of ATS-1. I have an Experimenters' Guide issued by NASA in 1980. It mentions its location as being 149 degrees West Longitude, and that the preferred channel is #3 (Uplink 149.22 MHz; Downlink 135.6 MHz). This frequency pair is still allocated to several Australian educational institutions in the current public-release edited version of AMFAR (Australian Master Frequency Allocation Register). I have not heard ATS-1 in Melbourne recently, admittedly using only a vertical antenna, and I have heard that NASA handed over control to the University of Hawaii. This may explain a change of the downlink frequencies to 136.46 MHz and 137.35 MHz, as stated in the May issue. (Only the latter frequency is shown in AMFAR.) I cannot see why ATS-1 would have moved to "191.78W". There is a good article on ATS-1 in the October 1980 issue of 73 Magazine.

My second query is about the (proposed) location of AUSSAT-3 at 160E. Most published sources show the locations of AUSSATs 1, 2 and 3 as 156E, 160E and 164E respectively.

The "new Japanese weather satellite situated at 220W" (140E) would have to be touching the Russian Gorizont 6 which also shares that spot. 2280 MHz is not allocated to spacecraft in AMFAR, but the nearest locations are 2275 MHz and 2287.5 MHz.

Geostationary satellites tend to be spaced at least 1 degree apart (although I have seen nothing to suggested that they cannot be closer), so I am puzzled by the satellite named SIRO at "295.65W" (64.35E). It would be very close to the Italian SIRIO at 65E and Intelsat V F5 at 64E. The frequencies of 136.1376 MHz and 136.1381 MHz are not listed in AMFAR, but that proves nothing.

The Editor's Note left me puzzled. Even if ATS-1 is at 191.78W (168.22E), computed Azimuth of 324 degrees from 37S, 145E would be impossible. A satellite at 168.22E would be east of true north (−145E), and the azimuth would be around 35 degrees. Your calculation for AUSSAT-3 is similarly incorrect.

I have a programme adapted from one published in 73 Magazine, January 1982, page 62. I used it to locate Intelsat IVA F3 (179E or 181W) from 37:51:49S, 144:44:45E, and computed azimuth as 47.971 degrees: elevation as 33.4987 degrees. This has been confirmed by actually receiving TV signals from that bird at one of AR's advertisers' premises (GFS Electronic Imports). Their programme produced the same co-ordinates. Co-ordinates for most TV satellites visible from VK state capitals and Auckland have been published with my article on Satellite Television in Amateur Radio Action, Vol 8 No 1.

Ash Nallawalla ZL4LM/VK3CIT
PO Box 539
Werribee, Vic. 3030

TECHNICAL EDITORS COMMENT

The mistake in the test data is mine. I transposed some headings and data. The correct data, that I had intended to include is —

	AUSSAT 1	AUSSAT 2	AUSSAT 3
Location (°E)	156	164	160
Range (K)	37382	37589	37472
Elevation (°)	45	42	44
Azimuth (°)	17	29	24

Any distress that this caused is regretted.

The position of the various AUSSAT satellites was provided by AUSSAT who confirmed, after receipt of this letter. The number of the satellite gives the chronological order, based on launch dates.

Finally the position of the Applied Technology Satellite (ATS-1), according to my information, agrees with the letter writer. However, as this satellite was launched decades ago, it most probably is "dead" to general users. **AR**

HOW ABOUT SOME TRIVIA?

On the ABC broadcast station 2BL, a question was asked 'Where did SOS and Mayday originate from?'

Perhaps we could start a Trivia column! If it's not too 'heavy', I'll even volunteer to edit it.

Kind regards, sincerely,

David A. Pilley VK2AYD,
15 Forest Glen Crescent,
Belrose, NSW. 2085.

What do readers think? If enough suitable contributions are forthcoming, we may accept David's offer. Ed.

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AR85

Silent Keys

It is with deep regret we record the passing of —

MR SELWOOD CHARLES (JIM) AUSTIN VK6JA
18:06:1985
MR CLAUDE D'EVELYNES VK2CD
16:06:1985
MR BERT HAY VK2AE
06:07:1985
MR MANFRED DOUGLAS (TED) HUDSON VK4MH
03:07:1985
MR H KANE VK3BFJ
15:06:1985
MR FRANCIS MICHAEL NOLAN VK4FN
31:05:1985
MRS VALERIE NORTON VK4FKL
19:05:1985
MR JIM POWELL VK2CK
08:07:1985
MR RONALD NEWTON RIDE VK2BQF
30:06:1985
MR HARRY SIMMONS VK6KX
MR FRED SIZEMORE VK2ARU
29:05:1985

Obituaries

JIM POWELL VK2CK

Jim, who was generally known as 'Captain Kangaroo', was taken ill whilst on holiday with his wife and two young children, in India. He flew to Houston, Texas, where he passed away in hospital on 8th July 1985.

Jim was an American, but had lived in Australia for the past ten years and was very active on the DX circuit. He will be sadly missed by all his amateur friends.

Deepest sympathy is extended to his wife and children.

Paul Christoforidis VK2DOU

CLAUDE D'EVELYNES VK2CD

It is sad to report the passing of Claude at 2AM on 16th June 1985.

Owing to ill health, Claude has not operated his station very much in recent years, although he was still a keen radio enthusiast.

Claude was a co-founder of the Christian Radio Missionary Fellowship and his contribution to this work of radio communications in Papua-New Guinea was his principal employment until ill health forced him to retire.

To his wife Betty we extend condolences.

P J Evans VK2KEV

FRED SIZEMORE VK2ARU

It is sad to report the passing of Fred Sizemore VK2ARU on the 29th May 1985, in his 83rd year.

Fred was a real "old timer" in amateur radio and will be remembered by those active in pre-war years. He resumed activities after WW2 and a few months back changed to SSB.

He had not been enjoying good health and had a sudden fatal heart attack on the morning of 29th May.

Deepest sympathy is extended to his wife and family.

Bill Bullivant VK2BC

MANFRED (TED) DOUGLAS HUDSON VK4MH

Ted Hudson VK4MH, first became interested in radio at school in Brisbane when 4QG was the only station operating and crystal sets were all the rage.

He built his first one valve crystal set in 1926 and later experimented with musical broadcasting at Mt Isa in 1934.

During WWII he worked as a crane driver on the Cairns wharves loading vital war supplies for the Pacific campaigns.

In 1949 he became a fully licenced amateur with the call sign VK4MH and in 1967 was a foundation member of the Cairns Amateur Radio Club, he actively participated in club events and was later awarded life membership.

In March 1956, Cyclone Agnes struck Cairns and official communications were disrupted. Ted, along with other amateurs, handled all the telegram traffic between Cairns and Brisbane, until services were restored.

Ted also stood radio watches with North Queensland WICEN during Cyclone Tracy in 1974 and later during Cyclone Allen in 1976. He also participated in WICEN-SES exercises in the Cairns area.

Ted, known as 'Ted One', was a regular on the Coral Coast Net, along with his cat 'Blue', who had a good microphone voice. Ted was also a member of the RAOTC and will be missed by all in North Queensland.

All of Ted's fellow amateurs were indeed saddened by his passing and their deepest sympathy is extended to his son Doug, daughter Gloria and their families.

Ted Gabriel VK4YG (Ted Two)

RONALD NEWTON RIDE VK2BQF

Ron was born in England in 1919 of Australian parents. He passed away after a short illness on 30th June 1985 at the Woden Hospital in Canberra.

Ron's early years were spent in Tasmania. His parents were keen musicians and kindled his love of music. An uncle who had an aptitude for things mechanical and electrical stirred his interest in these fields. When the family moved to Melbourne, Ron studied at the RMIT and gained his Diploma on Chemistry and Physics. At the same time he also learned singing and developed a fine bass voice which he used on many occasions for charitable and humanitarian purposes. In 1939 he joined the Munitions Supply Laboratories and was transferred, in 1942, to the MSL Branch Laboratories at Penfield, SA.

During his stay in Adelaide he married and also studied the pipe organ. It was during this time that his interest in amateur radio crystallised and Ron began studying for the AOCP.

On returning to MSL in Melbourne after the war, he began research on corrosion. In 1946 he passed the exam for AOCP and became licenced as VK3NH.

When Ron retired from the work-force he moved to Merimbula, NSW where he became actively involved in community affairs including the local radio club.

Over the years, as a result of his outgoing personality and intense interest in many fields, he made many lasting friendships, both in the social field and that of amateur radio. For some years a member of the South East Asia Net (SEAnet) and in recent years in contact with personal friends, he led a full life, always ready to help those in need.

Ron's passing is a sad loss to the community and to amateur radio.

He is survived by his wife, Doris, sons John and Bruce and daughter Joanna, to all of whom we extend our deepest sympathy.

James Blackwood VK3ABL

SELWOOD CHARLES (JIM) AUSTIN VK6SA

Jim passed away on 18th June 1985. His death brought to a close a long career in amateur radio. He was a member of the FCO CW Club and a MIRE.

Born in 1902, Jim completed his formal education at Perth Modern School and soon became interested in radio. His introduction was via a home brew receiver, the antenna being the top strand of the home wire fence. He learned Morse code and increased his speed by copying VIP, the local coast station, and any readable ship station.

Jim's amateur activities covered many years from the 1920s until shortly before his death, the only gap being during the wartime shutdown.

Finally a change to a QTH in a block of units for the aged and risk of TVI proved too big a problem.

Early in his amateur life he was active in the old Subiaco Wireless Society and later in the WIA. Interest in VHF on the old 5 metre band resulted in many debased valves and various antenna arrays. I believe he shared an early distance record on this band.

However his main activities centred on the HF bands, where he made many thousands of contacts. VK6SA was a very familiar call sign in all parts of the world, especially the USA.

In 1921 Jim sat for and obtained a first class commercial certificate and went to sea in the old MV 'Kangaroo', an early motor ship of rather strange appearance. She had four masts but no funnel.

Various appointments followed and when I first met Jim, he was installing radio gear in an ocean going tug at Fremantle prior to a towing voyage, in the late 1920s.

Our next encounter was upon the foundation of the WA Police Radio Branch. The then Commissioner of Police, inspired by the famous Scotland Yard 'Flying Squad', decided to institute a similar patrol system in Perth. Formed in 1930, it used two Speed Six Bentleys and wireless telegraphy.

The PMG's Wireless Branch insisted upon certificated operators being employed, so four ex marine WOs were recruited. For five years rented transmitters and receivers were used, but in 1936 the system was taken over by the WA Police and Jim was appointed OIC

From then on Jim's and the WA Police's radio history ran on parallel courses.

Opposition and prejudice from senior officers in the traditional force had to be overcome and some situations were complicated by Jim, who was not renowned for his diplomacy and tact when aroused.

However his technical ability and skills in improvising resulted in much of the radio gear being built at VKI, especially during the war years, when commercial firms were too busy with war orders. Over the years the system grew until it was statewide and handling traffic from Police HQ in all states.

Many memories come to mind which demonstrate his true amateur qualities. One time, in 1932 during a police expedition to the Warburton Ranges to investigate reports of murders, Jim was taken along as communications officer. Jim's equipment was a homebrew transmitter and receiver and a camel. Not being on good terms with the camel, he

chose to walk most of the long distance. Jim kept schedules most evenings using a hand cranked HT generator and passed traffic through VIP Perth or VIO Broome radio stations. The generator he used is now preserved in the museum at Wireless Hill, WA.

After his retirement in 1962 Jim undertook some installation and relieving work for the Royal Flying Doctor Service, in the north west of WA. Typical of Jim, he undertook a solo visit to the USA at the age of 82 years to fulfil an old ambition.

Vale Jim.

W S Watson VK6WW.

HARRY SIMMONS VK6KX

One of the early pioneers, Harry was like the equipment he constructed, built to last a long time. Sadly, all good things have to end sometime and Harry died early in July aged over 80 years.

As a young man, Harry went to sea as a merchant ship radio officer at short notice. We are told that his first job on entering the radio room was to reconstruct the equipment. Harry came ashore in 1929, and joined Musgroves, Perth, in the service department, working on the new wireless receivers. One year later, in 1930, Musgroves Limited obtained the first commercial station license in Western Australia, from the PMG. This was radio 6ML.

Harry Simmons was the obvious choice to supervise the building of the transmitter and he became the station's chief engineer. (This transmitter is now in the Wireless Hill Museum in Perth).

Three years later, WA Newspapers formed radio 6IX in Perth and in 1936, 6WB Katannine and in 1941, 6MD in Merriden. Harry was, of course, the network's chief engineer.

An early member of the legendary Subiaco Radio Society, Harry helped many members with this new hobby of wireless. The walls of his shack were covered with rare QSL cards, from all over the world.

A true pioneer of Australian radio, he was a Fellow of the IREE Australia and an early member of the WIA. He is survived by his wife Elizabeth (Peta) and his daughter Helen and son Robert.

Douglas Gordon
Vice-President, VK6 WIA Division

FRANCIS MICHAEL NOLAN VK4FN

Francis Michael Nolan VK4FN was born at Coraki NSW on 5 October 1910, the son of a publican. Frank left school at the age of 14 and was apprenticed as a motor mechanic at Lismore. Whilst an apprentice Frank became interested in radio and became an early member of the thriving Queensland Radio Transmitter's League. Frank obtained an experimenter's permit and was allowed to transmit over a distance not exceeding 2 miles (3km).

Frank continued his studies by moving to Sydney where he obtained his diploma in radio engineering at the Australian School of Radio Engineers situated at the STC Laboratories, Waterloo, Sydney. Here he became a member of the Australian Radio Transmitter's League.

Always liking a warmer climate Frank returned to Brisbane as a qualified radio technician, gained the call sign VK4FN, and, after a brief period with Ben's Radio Service, became self employed.

Naturally his interest in amateur radio was strong and he became a member of the WIA on 5 March 1833.

During the Great Depression business was poor so Frank secured a permanent job with the PMG Department, initially as a telephone technician but after topping Queensland in their trade exams, as a radio technician.

In 1939 Frank started his long association with Rockhampton and was placed as OIC of the local broadcasting stating 4RK. Being in a reserved occupation Frank was unable to enlist but in 1945 spent a year in Port Moresby establishing 9PA.

Frank then returned to Brisbane in 1946 and once again VK4FN was heard on air. Frank was very active in WIA affairs when the Institute was re-established after the war and was Federal Councillor in 1947, 1948. Frank then started his long association with the Amateur Advisory Committee in which area he has assisted countless amateurs. Frank was also an enthusiastic supporter of WICEN activities.

In 1951 VK9FN was heard when Frank was promoted by the PMG Department to be in charge of broadcasting in the Territory of Pupua and New Guinea. In 1952 Frank led moves to establish the VK9 branch of the Institute and was its first President until he was retired from work early, on health grounds, in 1958.

After a spell in Brisbane, Frank returned to Rockhampton where in 1960 the WIA CQ Branch was formed with Frank as its inaugural president and the late Hal Hobler VK4DO its inaugural secretary.

After 5 years as President of the WIA CQ Branch Frank then stood down and in 1969 returned to Brisbane. Frank since then was a tower of strength at the monthly general meetings of the Institute and in his own inimitable way broadcast the weekly news broadcast on 80 metres for over 10 years.

The Institute in Queensland has honoured Frank VK4FN by awarding him Merit Badge No 3 and more recently in awarding him the Institute's highest honour — Life Membership of the Wireless Institute of Australia.

Frank became a silent key on Friday 31st May 1985 and to his XYL Helen and seven children, all members offer their condolences.

WIA QLD DIVISION.

VALERIE NORTON VK4FKL

Valerie passed away prematurely of cancer at Mackay Base Hospital on 19th May 1985.

Many will remember Val as VK4VKT, a regular on the 15 metre band and a popular contact, especially with the JA stations. It was often amusing to hear her as she helped yet another JA operator with the subtleties of the Australian language. It was wonderful that, in June 1984, Val was able to visit Japan and personally meet the many friends she made through her hobby.

As a member of the Mackay Amateur Radio Club, she was a prime mover in the operation of a slow Morse net, designed to help locals through the 10 WPM barrier. At meetings she was always vocal in promoting a responsible approach to the use of the privileges and responsibilities of amateur radio.

She was also well-known as a member of ALARA and encouraged local OMs to participate in their contests and activities.

She had a cheery, helpful voice on the air and will be missed by all who had the pleasure of a QSO with her.

Deepest sympathy is extended to her OM, Terry and their family.

Charles Ivin VK4BPI
Secretary,
Mackay ARC

APOLOGIES . . .

Are extended to the families of the late Messrs Bail and Semmens, as the photograph in the centre pages of July AR was actually Fred Bail, with the caption of Bert Semmens.

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SOLAR GEOPHYSICAL REPORT

10 CM RADIO FLUX				
MONTH	MEANS PREDICTED	ACTUAL	HIGHEST DAILY	LOWEST DAILY
10/84	73	73,7	77 15 18/10	69 29/10
11/84	76	76,3	86 27/11	70 2/11
12/84	76	75,8	81 11/12	72 20,21,31/12
1/85	74	74,4	91 20/1	69 5/1
2/85	74	73,8	78 19/2	70 27/2
3/85	77	72,6	80 24/3	69 5,6,7,10,12/3
4/85	83	75,2	94 25/4	69 9-13,16/4
5/85	88	80,5	93 16/5	68 31/5
6/85	89			
7/85	87			
8/85	85			
9/85	85			

A INDICES				
MONTH	MEAN	HIGHEST DAILY	LOWEST DAILY	DAYS OVER 15
10/84	17,9	60 19/10	2 17/10	18
11/84	16,5	80 16/11	5 27/11	13
12/84	14,4	25 17/12	4 24/12	17
1/85	13,3	45 28/1	3 6/1	12
2/85	13,6	55 28/2	2 4/2	10
3/85	9,8	28 5/3	3 9/3	6
4/85	16,1	77 21/4	3 6/4	6
5/85	9,0	28 2/5	3 30/5	2

PROVISIONAL MONTHLY MEAN SSN		PROVISIONAL SMOOTHED SSN	
10/84	12,6	4/84	46,4
11/84	22,4	5/84	47,2
12/84	18,2	6/84	46,1
1/85	16,5	7/84	43,8
2/85	16,1	8/84	39,2
3/85	11,9	9/84	33,4
4/85	16,1	10/84	28,2
5/85	27,4	11/84	24,0

1-4 April — Magnetic field unsettled to active A20,16,19,16.

9 April — Magnetic field at storm levels until 1700 UTC, then quiet to unsettled A=28

19-21 April — Magnetic field became active towards the end of 19 April. The field was at minor to major storm levels on 20 April and again on 21 April until 1800 UTC on 21st. The field then subsided to unsettled levels A15,44,77.

22 April — 1 M class flare. Possible fadeout 1637-1651 UTC A14.

23 April — Magnetic field unsettled to active A15.

24 April — 1 X class flare. Possible fadeout 0845-1002 UTC. Field unsettled A15.

25 April — Magnetic field unsettled to active A22.

26-30 April — Magnetic field at active to storm levels particularly on 28 April when major storm levels were reach A26,28,40,15,24.

SOLAR ACTIVITY

Solar Activity was low until 21 April when a region began to grow rapidly producing an M class flare on 22 April and an X class flare on 24 April. Flux figures were 20=72 21=77 22=86 23–92 24=90 25–94. The region appeared to be capable of producing further events for much of the remainder of the month but did not do so.

An interesting feature during the month was a region of reversed magnetic polarity to that normally observed for similar regions during the solar cycle. The polarity of sunspot regions reverse from one cycle to the next and so the region observed this month can be regarded as one of the first regions of the next solar cycle.

GEOMAGNETIC ACTIVITY

The most noteable feature of the month was the intense magnetic disturbance on 20-21 April. The A index for 21 April was 77 which makes the day the most disturbed day since 16 November 1984. The period 19th to 30th April was generally disturbed with the most disturbed days being 20 April A–44, 21 April A=77 and 28th A–40.

1-2 May — A magnetic disturbance began gradually around 2300 UTC on 1 May and the field was at storm levels until app. 1530 UTC on 2 May. At 0741 a M class flare occurred with effects lasting until 0753 UTC. A13,28.

13 May — 1 M class flare at 0904 UTC with possible fadeout until 0948 UTC. A11.

15 May — The magnetic field was at active levels from 0100-0700 UTC and from 1430-1600 UTC otherwise the field was unsettled. A16

SOLAR ACTIVITY

Solar activity was low during May with the exception of energetic flares on 2 and 13 May. The region which produced the large flare in April rotated off the visible disc of the sun on 2 May producing an M class flare when close to the western limb of the sun. Another region appeared on the eastern edge of the sun on 6 May and it was this second region which was responsible for the elevalid 10.7 cm flux in the middle of the month 8=80 9=88 10–90 11=88 12=90 13=90 14=90 15=91 16–93 17–90 18=91 19=88. This region rotated off the disc of the sun on 19 May having produced one energetic event only, the flare of 13 May. The return of the first active region on 16 May helped maintain the 10.7 cm flux at higher values. However, this region did not appear at any stage to be capable of producing energetic flares.

The monthly average 10.7 cm flux was the highest monthly value since August 1984.

GEOMAGNETIC ACTIVITY

May was a very quiet month in that there were only two days on which the field was disturbed. The most disturbed day was 2 May with an A of 28 and the field was at minor storm levels. The most notable feature of the month was the absence of activity during the period 26th to 28th May. This represented the end of a sequence of "recurrent" (ie spaced at intervals of 27 days) disturbances. This sequence began a year ago making it an unusually long sequence of disturbances.

These summaries have been extracted from the Solar-Geophysical Summary prepared by the Ionospheric Prediction Service each month which arrives during the second week of the following month. They are dated but will serve as a useful summary of events gone by. Of course the daily information is available as a recorded telephone service on (02) 269 8614 or in other forms on WWV Boulda Colorada USA on 5,10,15 MHz at 18 minutes past each hour. It is proposed to present them each month from this month onwards.

The January 85 notes made a comparison between the sunspot number and the 10.7 cm flux. Seems that the gremlins got to it no end. It should have read like this.

SSN SMOOTHED MEAN 0 7 21 34 47 71 93 115 136 157 176 195
10 7 CM FLUX SMOOTHED MEAN 60 70 80 90 100 120 140 160 180 200 220 240

There is no direct correlation between these two indices. The SSN is derived from counts of sunspots and sunspot groups made at optical observatories. The derivation of the sunspot number is difficult and is often replaced by the 10.7 cm solar radio flux which can be measured with relative ease and consistency.

THE IONOSPHERE

How come?

The sun emits electromagnetic radiation at all wavelengths, but only the optical and the shorter radio wavelengths reach the earths surface. The remaining solar radiation heats the atmosphere and also, especially the UV and EUV part of the spectrum produces some ionisation in the form of free electrons and charged ions. The ionosphere is the region of the upper atmosphere where ionisation is appreciable.

Until artificial satellites came into existence, long distance radio communication was possible only because of the presence of the ionosphere which is able to reflect certain high frequency radio waves.

The nature of the atmospheric gases varies with height, and each component is ionised by a different part of the solar radiation. Therefore, the ionosphere tends to be stratified into layers of ionisation at different heights.

In the daylight situation

The three main daytime layers, called the E, F1 and F2 layers are at heights of approximately 110 kms, 220 kms, and 250 to 350 kms, respectively.

In addition there is a region below the E layer which is responsible for much of the daytime absorption of HF radio waves. This is called the D region and lies at heights between 50 and 90 kms.

After dark

Following sunset, the ionisation process stops and the lower layers rapidly decay with time. The D region ionisation is absent at night. The E layer is heavily depleted. The F1 and F2 layers merge into a single night time F layer. This layer does not completely disappear because the decay process is much slower and also because very strong ionospheric winds at F layer heights blow ionisation in from the sunlit parts of the earth.

The F layer is the most important layer of HF communications because it is always present.

SOLAR GEOPHYSICAL SUMMARY — JUNE

SOLAR ACTIVITY:

The return of the active region on June 3 produced an increase in the 10cm Flux, 3=73 4=75 5=82 6=85 7=86 8–06 9=87 10=89 11=89 12=87 13–86 14=83 15=81. On its last transit this region produced one energetic flare (M flare on 13/5) but on this transit never appeared likely to produce energetic flares. The region rotated off the disc on 16th. It returned again on 30th and produced higher 10cm flux levels for the first two weeks of July. This should produce higher ionospheric critical frequencies during that period.

GEOMAGNETIC ACTIVITY

June 1 — The field was active to minor storm levels to 1800ut then quiet A=16

June 6-10 — Field was at active to storm levels on 6th and 7th. The field was generally active on 8th, on 9th was at minor storm levels prior to 1500ut on 10th A=26, 33, 18, 18, 22

June 26-29 — The geometric field was active on 26th, 27th with periods of storm conditions on 28th A=18, 16, 21, 15

June 30 — The field became disturbed after 2030ut and reached storm levels early on July 01. A=11

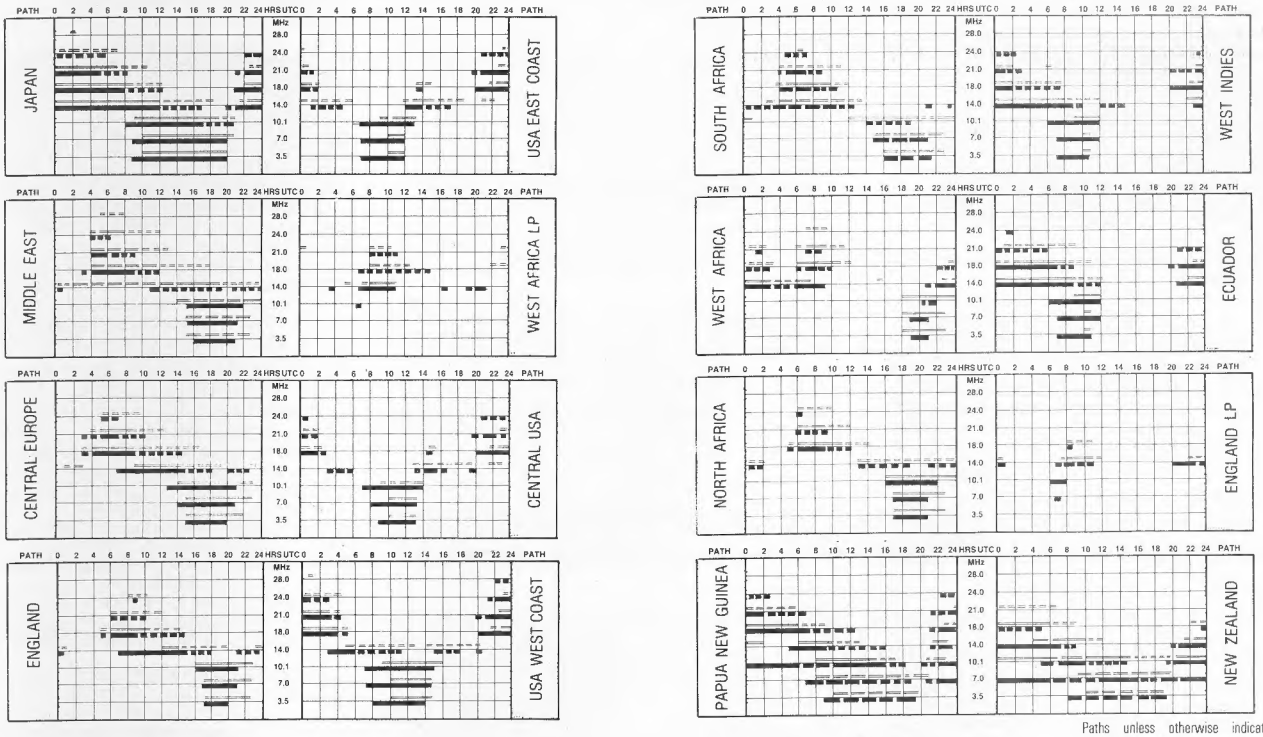
MUFS were typically 10-20% higher than anticipated particularly the period 5th-15th associated with the higher 10cm flux over this period. Ionospheric conditions during local night hours inhibited HF propagation at times.

10cm FLUX MONTHLY AVERAGE 76.2
SUNSPOT MONTHLY AVERAGE 24.2
A INDEX MONTHLY AVERAGE 11.9
RUNNING SSN 12/84 21.1

FROM DATA SUPPLIED BY
DEPT OF SCIENCE & TECHNOLOGY
IONOSPHERIC PREDICTION SERVICE
AR

IONOSPHERIC PREDICTIONS

Len Poynter VK3BYE
14 Esther Court, Fawkner, Vic, 3060



LEGEND

From Western Australia (Perth)

From East Australia (Canberra)

Better than 50% of the month but not every day (continuous lines)

Less than 50% of the month (short broken lines)

Mixed Mode Dependent on angle of radiation (long broken lines)

Paths unless otherwise indicated lie: LP = long path! all paths are short path.

Predictions reproduced courtesy of the Department of Science and Technology. Ionospheric Prediction Service, Sydney.

All times in UTC.

TEN METRE BEACON LIST

MHz	C/S	Location
28.175	VE3TEN	Ottawa
28.200	DL0IGI	W Germany
28.2025	9J2B	Zambia
28.2025	ZS5VHF	Natal,RSA
28.205	DL0IGI	W Germany
28.2075	W4ESY/N4RD	Florida
28.209	WA1IOB	Mass,USA
28.210	3B8MS	Mauritius
28.2125	ZD9GI	Gough Island
28.217	VE2TEN	Chicoutini
28.215	GB3SX	England
28.220	5B4CY	Cyprus
28.2225	W9UXO	Chicago
28.225	HG2BHA	Hungary
28.225	EA6AU	Balearic Island
28.225	VE8AA	Yukon
28.230	ZL2MHF	New Zealand
28.235	VP9BA	Bermuda
28.2375	LA5TEN	Oslo
28.240	OA4CK	Lima
28.240	PY1CK	Rio de Janeiro
28.2425	ZS1CTB	RSA
28.2425	LU4FM	Argentina
28.245	A92C	Bahrain
28.2475	ZS1CTB	South Africa
28.2475	EA2HB/EA2OIZ	Spain
28.250	Z21ANB	Zimbabwe
28.250	PA0GG	Netherlands
28.251	ON5AV	Belgium
28.2525	VE7TEN	Vancouver
28.255	LU1UG	Argentina
28.2575	DK0TE	Germany
28.260	VK5WI	Adelaide
28.261	VK2RSY	Sydney
28.2625	VK2WI	Sydney
28.265	PY2EXD	San Paulo
28.270	ZS6PW	Pretoria
28.271	VK4RTL	Queensland
28.2725	TU2ABL	Ivory Coast
28.2725	9L1FTN	Sierra Leone
28.275	VE3TEN	Canada
28.2775	DF0AAB	W Germany
28.280	YV5AYV	Caracas
28.280	LU8EB	Argentina
28.284	VP8ADE	Falkland Is
28.284	KA1YE/B	Niantic, CT
28.286	KA1YE	Rochester
28.287	W8OMV	N Carolina
28.288	W2NZH	New Jersey
28.290	VS6TEN	Hong Kong
28.2925	LU2FFV	Argentina
28.295	VU2BCN	New Delhi
28.296	W3VD	Maryland
28.2975	ZS1LA	Stillbay
28.299	PY2AMI	San Paulo
28.315	ZS6DN	RSA
28.888	W6IRT	California
28.890	WD9GOE	USA
28.992	DL0NF	W Germany

Contributed by Bert Harmer VK5AUS
Compiled by John Mahagan WB4JHS

FLEA MARKETS

Next time you attend one of these, ask yourself the question, "How did a flea market get its name?"

Quite naturally, you might conclude it is because it deals in many small bits and pieces of little value, or that it is a trading place of mini-size. Not So!

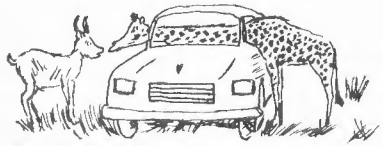
The original Flea Market was a half mile long conglomeration of stalls and selling venues, on the outskirts of Paris, whose polyglot proprietors offered everything from a needle to an anchor. It earned the description because of the vermin-ridden clothing, rags, floor mats, etc that it offered for sale.

In those days, reasonable hygiene was unattainable and the flea plague was persistent.

Fleas don't inhabit metal goods, so our Radio Flea Markets are a bit of a misnomer.

Contributed by Alan Shawsmith VK4SS

NOTICE



NOTICE

ALL copy for inclusion in the November issue of AR must arrive at the Federal Office by midday on the 23rd September 1985.

HAMADS

PLEASE NOTE: *If you are advertising items FOR SALE and WANTED please write each on separate sheets, including ALL details, eg Name, Address, on both. Please write copy for your Hamad as clearly as possible, preferably typed.*

- **Please insert STD code with phone numbers when you advertise.**
- Eight lines free to all WIA members. $9 per 10 words minimum for non-members.
- Copy in typescript please or in block letters double spaced to PO Box 300, Caulfield South 3162.
- Repeats may be charged at full rates.
- QTHR means address is correct as set out in the WIA current Call Book.

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being resold for merchandising purposes.

Conditions for commercial advertising are as follows: The rate is $22.50 for four lines, plus $2 per line (or part thereof) minimum charge $22.50 pre-payable. Copy is required by the deadline as stated below indexes on page 1.

AMIDON FERROMAGNETIC CORES: Large range for all receiver & transmitting applications. For data & price list send 105x220mm SASE to: RJ & US IMPORTS, Box 157, Mortdale, NSW. 2223. (No enquiries at office . . . 11 Macken Street, Oakley). Agencies at: Geoff Wood Electronics, Rozelle, NSW. Truscott Electronics, Croydon, Vic. Willis Trading Co, Perth, WA. Electronic Components, Fyshwick Plaza, ACT.

ANTENNAS FOR CONFINED SPACE: Transmitting antennas for amateurs without space to erect full size HF antennas. Write for details to: FRANK HUNTER, 37 Darwin Street, Campbelltown, NSW. 2560.

PACKET RADIO THE SOFTWARE APPROACH by Robert Richardson W4UCH/2. Use your Z80 computer as a TNC. Get on Packet for well under $100. Full Z80 source code listing. Vol 1 (Vancouver Protocol) $24. Vol 2 (AX25 Protocol) $34. Disks available for TRS80 Model 1 & Model 3. $30 each. Modem & I/O circuits included. Prices include P&P Aust & NZ. A A O'BRIEN VK2BOA, Box 333, Charlestown, NSW. 2290. Tel:(049) 43 8981.

"RADIO MAN PACK". VZ200/300 or VIC 20. (Log book plus Morse code plus beam heading & typing tutor). All four programmes on one cassette for only $12. Specify computer. J HIRST, RSD 170, PO, Exeter, Tas. 7251.

WANTED — ACT

TAPR TNC KIT complete or assembled, working or not, with documentation. Keen to get started in digi comms. Bryan VK1ZBS, QTHR. Tel:(062) 86 4327.

WANTED — NSW

CHEAP VIC-20 OR COMMODORE 64, not necessarily working. VK2ZQD, QTHR. Tel:(046) 25 7746 AH.

CIRCUIT DIAGRAM FOR 18 CH CB TCVR. National Panasonic Model RJ-3100B18. All costs paid. A K McPhail VK2YSC. Tel:(02) 692 3591 BH, (02) 868 2561 AH.

SOCKET FOR 4CX1000A OR 4CX1000B. Cash or trade 3-500Z or 4CX1000A Eimac tubes. Tel:(02) 918 3835.

WANTED - VIC

ARMY TYPE 109 TX-RX. Any cond. Also type 3B tx-rx built by AWA. SCR 536 Walky-Talky, ATR-4B, pwr supplies for -11 set. Wanted for collection. Mike VK3PID, Olinda Road, The Basin, Vic. 3154. Tel:(03) 762 8492.

COLLINS 30L-1 LINEAR AMP. Any cond, even incomplete. Collins S line access. 312B4 spkr, 312B3 console, 136B2 blanker, SM3 desk mic. Any other Collins accs, valves, spares or literature. Eimac 3/400 or 3/500 Z tubes. Prices to Garry Marcon VK3AJX, 2 Lowan Court, Frankston, Vic. 3199. Tel:(03) 789 4363.

COPIES OF OR INSTRUCTION BOOK for NSC1400 calculator. VK3AH, QTHR.

IC-225A in good condition. VK3GG, QTHR. Tel:(03) 337 8094.

VIDEO TAPES: .75 inch U-matic tapes, blank or reusable. Any quantities, any lengths. Also low band U-matic recorder, any cond. Also Sony DXC 1200 P camera. Price & details to Paul, 81 Murray Street, Rutherglen. Tel:(060) 32 9217.

YAESU FT-225R. In good cond. Details to Bert VK3BH, QTHR. Tel:(03) 857 9438.

WANTED - QLD

METER SCALE MODEL 400 for Taylor 'Windsor' model 75A multimeter or complete unit. Hi voltage probe 20 & RF probe 22 for University MVA6 valve voltmeter. Circuits & data for Realistic AM 27MHz TRC200, 5W tcvr, Ace tone electronic organ, mod A1025. Data etc on Paton VCT2 valve tester. JR colour TV circuit publications. VK4DY. Tel:(071) 96 1186.

SWAN 700CX, SS16B SCHEMETIC DIAGRAM. Also for power supply. Information on stabilising tx frequency FT-620. Will pay postage etc. Ken VK4TPE, Rockhampton, QTHR. Tel:(079) 27 1966.

WANTED - WA

MANUAL/CIRCUIT DIAGRAMS or photo copies for AWA CR6B type 2C60600 receiver. All costs gratefully paid. Peter VK5ZM QTHR or Tel (08)384 5569.

CRYSTALS...tx & rx styled (HC6U) for conversion Hybrid set type FM1677 A/25, serial 8109 to 6m. Albert VK6ARD. Tel:(09) 384 3298 anytime.

WANTED - TAS

YAESU SP101 OR SP101P EXT SPKR to suit FT-101E & FV-101 ext VFO. Cash paid. Must be clean or near mint cond. VK7AN, QTHR. Tel:(003) 31 7914.

FOR SALE - NSW

COLLINS KWM-380 'PROMARK' TCVR. 0.5-30MHz, 10Hz resolution, 5Hz stability. Incl HF-380 (commercial model) access. For more information write giving call sign & address or phone no to: Collins KWM-380, Box 3, Hazelbrook, NSW. 2779.

DRAKE L7 power amp, MN2700 ant tuner, Telereader CWR 685E terminal. Please leave a message on (042)28 7455 ext 606 BH or write to VK2OE, PO Box 1914, Woolongong, 2500.

KENWOOD HC-10 CLOCK $90. Eimac 3-500Z new tube $185. Pelita 5D22/4.250A. New. $65. Sockets for above $30. 4CX1000A Eimac. 13uH ceramic roller inductor, 10 gauge silver plated wire $60. Tel:(02) 918 3835.

KENWOOD TR-2400 2M H'HELD. Complete with all manuals, spare nicad batt, fast & slow chargers & spkr/mic. $260. Packet Radio software approach for TRS80, complete with all manuals & built-up interface. $80. 2m power amps, 50W $60 & 80W $100. ETI modem, 300 BAUD & 1200 BAUD, modified for Packet Radio use. $100. Dentron Super Tuner, 1kW, 160-10m with in-built hi power balun. $150. VK2HL. Tel:(02) 981 4762.

KENWOOD TS-120S with mic & mobile mount. Good cond. $410 ONO. Bill VK2TS. Tel:(043) 74 1207.

MUIRHEAD PICTUREGRAM EQUIPMENT. 1930s vintage, tx & rx, many spares, CCTs. $500. John VK2ZHM. Tel:(02) 663 0197 BH or (02) 406 5338 AH.

SONY ICF 6500W. Excellent comm rx. Covers .530-30MHz plus FM with BFO. Covers most amateur bands. Top cond. $150 ONO. Bernard VK2NUU. Tel:(02) 30 7829.

TOWER...HILLS. 50' complete with base, guy wires, & turnbuckles. $500. Glen VK2AGM, QTHR. Tel:(02) 269 6997 BH or (02) 77 8407 AH.

YAESU FT-901DM. Complete with separate ext VFO with synthesised scanning & 40 mems, FM board, auto CW generation, separate match spkr, stand-off card for board servicing. Desk & Hand mics, separate 12V & 240V leads. Just taken out of service. Orig packing. $700. VK2DBH, QTHR. Tel:(065) 54 2105.

FOR SALE — VIC

ANTENNA... Vertical HF Chirnside 5 band in good order. $60. Yaesu FL-2000 HF linear, dismantled. $80. Yaesu antenna, mobile gutter grip. 2m & 15m. $30. Heathkit CRO, 5MHz. $30. Icom IC-290H 2m, all mode tcvr. $400. Barrie VK3KBY. Tel:(03) 347 3619 AH.

ANTENNA...TH3JR with rotator, plus 9m tower. $200. AR journals, Dec 1979 to present. 70 issues. ARA, Vol 10 to present. 77 issues. All EC. Graham VK3AOT. Tel:(051) 67 1434.

BEAMS...20m W/Wulf monobander. Heavy duty boom. As new. $110. Log Periodic, 11el, 144MHz ATN with balun. As new $50. VK3XV, QTHR. Tel:(03) 527 4029 from 0430-0800pm.

CLEARANCE SALE... Offers for IC-201 2m, FM, AM, SSB. Has fault. 6m tcvr valve type teleprinter, Creed 75 with tape punch, tape reader, teletype tester. VK3BOB, QTHR. Tel:(03) 578 7441.

FTDX-401 TCVR. Yaesu's finest valve tcvr, no need for linear, rated at 560 W PEP input, 500Hz CW filter, 160, 80, 40, 30, 20, 15, 11 and 10m. As new, one owner. Suit OM with preference for valves and ease of service. $350 VK3AFW, QTHR. Tel (03)579 5600 1830-2130 Mon-Thu.

FLUKE 8060A MULTIMETER. This top of the range meter cost $600. Sell for $350. With case, leads, manual or exchange for rx or scanner. Tokyo HL-45 uc linear. CW, SSB, FM. 2/15W in, 10/45W out. 432MHz. Rick, 'Idaville', Lewis Road, Montrose, Vic. 3765. Tel:(03) 728 2706.

FV-107 REMOTE VFO FOR FT-107. Unused in carton, with instr book. $50. John VK3AJI, QTHR. Tel:(03) 758 5859.

ICOM IC25A, 25W 2m FM tcvr (late model with green readout) $340.Printer, dot matrix-FAX 80,80 col,80 CPS, Centronics parallel interface, spare ribbon, little use $300. Hewlett Packard 310A wave analyser. 1kHz-1.5MHz. Complete with handbook and calibrator option. EC $300. Peter VK3AWY Tel (03) 697 6161 BH or (052) 82 2751 AH.

KENWOOD 120S, 100W. In ex cond with AT-120 tuner unit. $550. VK3SS, QTHR. Tel:(051) 47 2265.

KENWOOD TS-530S, 240V AC BASE STATION. 2/6146Bs final, all bands. 160-10m inc all WARC bands. CW filter, calib, mic spare tubes, mech & elec as new. Occasional stand-by use only. $675 ONO. Andy VK3UJ. Tel:(03) 726 8911.

RECORDER, REEL TO REEL. Portable English 'Studio'. Mech excellent. Ideal for transistor conversion. Inc 8 full size recorded tapes of music. (Beatles & Dance), Morse, Churchill's war speeches & BBC 'Take It From Here' series. Also BASF splicing kit. $50 the lot ONO. Errol VK3GG. Tel:(03) 337 8094.

TOWER... Tilt over, 30' free standing. $350. Ian VK3DSM, QTHR. Tel:(03) 798 8070.

UNIDEN 2020... In good cond, but with intermittent fault. Complete with mic, manual, AC & DC leads. $150. VK3WM, QTHR. Tel:(03) 288 2180.

YAESU FT-230R 2M FM TCVR. Fully micro-processor controlled, 144MHz to 148MHz in 5kHz steps. 10 mem ch, LCD readout, 25W output. All packing cartons, circuits & access. In ex cond. $330. VK3BEW. Tel:(057) 21 2363.

YAESU H'HELD FT-208R. 800ch, adaptor BNC-UHF plug, YM-24A spk/mic. PA3 DC-DC chgr. 13.8-10.8V. Nicad batt. Chgr 10.8V. Spare nicad 10.8V pack. Q craft 2m SWR meter. Manual. $350.50 the lot. Norman VK3FT, QTHR. Tel:(03) 82 4853.

FOR SALE — QLD

MICROWAVE MODULES...70cm transverter MMT432/28S. Brand new, perfect cond. $300. 70cm linear amp MML432/50. Brand new, perfect cond. $200. IC-2A in PC. $200. FT-7B in EC. $350. Multi-7 in fair cond but works well. $50. Beven VK4ABV, QTHR. Tel:(071) 63 1477.

SOCKETS . . . Variety of early octal, 7 and 9 pin peanut tubes. Write for list or state type wanted. Include SAE: VK4SS 35 Whynot Street, West End, Qld. 4101.

FOR SALE - WA

ICOM IC-730 WITH mic, h'book & power cable. In ex cond. $750. Rod VK6AOK, QTHR. Tel:(09) 386 1998.

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Andrews Communications Systems

YAESU FT-726 (R)

VHF/UHF all mode transceiver. 10 watts output, AC/DC, 0.15uV sensitivity on SSB. LSB, USB, CW, FM. Repeater reverse. IF shift & width controls. RF speech processor. 10ch memory store mode, frequency & searches. Full cross band, cross mode duplex possible with satellite unit. Supplied with 2m module & mic.

$1199 Save around $300 Full 12 months warranty

70cm $349
6m $299
Sat $169

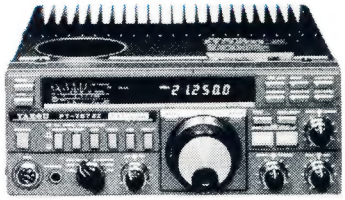
ICOM IC-731

HF SSB, CW, AM, FM transceiver with 100 watts RF o/p. 160-10m tx, 100kHz-30MHz rx. 12ch memory with mode scan, memory scan & programme scan functions. PBT & notch tuning. NB, etc. Inc mic.

Why pay RRP?

$1099 Save around $200 Full 12 months warranty

PS-55 ..... $279
AT-150 ..... $399



YAESU FT-757GX

HF SSB/CW/AM/FM transceiver with 100W RF o/p. 160-10m tx, 0.5-30MHz rx. 8ch memory with memory scan and PMS. Selectivity width and shift controls. AM filter included. Speech processor. Effective N.B.

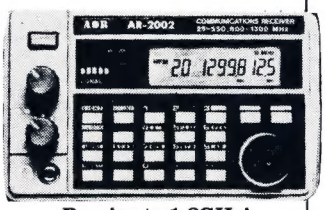
$1099 Why pay up to $1295? Full 12 months warranty.

FP-700 ..... $239
FC-700 ..... $189
FC-757AT $429
MD-1B8 ..... $109

AOR AR-2002

New professional scanner receives 25-550 and 800-1300MHz. Now features manual tuning, "S" meter and improved keyboard. 20ch memory etc.

$579 Why pay $675? Full 90 day warranty.

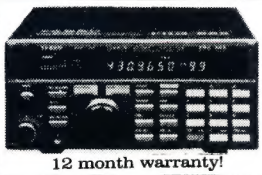


Receive to 1.3GHz!

ROTATORS

Why pay more?

*KR-400RC, 400kg/cm torque, medium duty $229
*KR-500, elevation rotator, 400kg/cm $229
*KR-600RC, 600kg/cm, heavy duty $319
*KR-2000RC, 2000kg/cm, super heavy duty $559
*KS-050, stay bearing for tower mounting $39
Top & bottom mast clamps included. Control cable $1.50/m.



12 month warranty!

YAESU FRG-965....$679

All-mode scanner receives 60-905MHz. USB/LSB/CW/FMN/FMW/AMN/AMW. Sensitivity 0.5μV FMN 12dB SINAD. 100ch memory with scan, search, delay, lockout etc. SSB rx to 460MHz

ICOM IC-390 (IC-490A eq.)

Our price **$679**

All-mode 430-440MHz 10W mobile UHF transceiver.

12 months warranty. Here now.

YAESU

12 months warranty

YAESU FT-2700RH, 2m/70cm full duplex $845
YAESU FT-208R, 2m prog h/h . . .
ON SPECIAL $299
YAESU FT-209R, 2m with FNB-4 charger, c/case (illus) $399
YAESU FT-209RH, 5W incl FNB-4, charger, c/case $429
YAESU FT-726(R) 2m all mode tcvr $1199
Modules for above. 70cm — $349, 6m — $299, Sat — $169
YAESU FRG-8800, 2-30MHz communication rx $799

Compare and save with Yaesu

TET HB-443DX 40-20-15-10m 4el Yagi ..... Only $479
ICOM IC-R71 Communications Receiver $950, AC/DC.
KENWOOD TS-430S HF SSB-CW-AM tcvr ..... $1245 o/o
Also coming soon, AT-250 $499, PS-430 15A p/s $269
WELZ meters, SP-220 $89, SP-420 $99, SP-122 $119,.
RF AEROSPACE, 3el. 10m $89, 4el. 10m $129, 5el. 10m $149, 208GR 2m $129, 208 $79, 205 $59, 7018GR $129.
CHIRNSIDE CA-33 $309, CA-35DX $389, Helicals $30 for 20, 15 or 10m, $35 for 80 or 40m. CA-42 15/10m $179
ELECTROPHONE TX-474 UHF CB h/h $399. Why pay more for similar hand-helds? Includes ni-cad, chgr, 12 mths warranty. Compare to EMTRON ACE

STOP PRESS!! RFA 2m Yagis, 2el $19. 3el $29. 4el $45. SAVE!!

TOKYO HY-POWER

Sole factory-authorised Importer

★ HL-120U 10W-100W, GaAsFET UHF Linear $569
★ HL-60U 10W-60W, GaAsFET UHF Linear $369
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